

What Can We Hear? A survey of preferences for live and processed sounds.

A Document

SUBMITTED TO THE GRADUATE FACULTY

in partial fulfillment of the requirements for the

degree of

Master of Music in Music Technology

Production Track

By

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Valley Forge Christian College

Phoenixville, Pennsylvania

June 27th- August 19<sup>th</sup>, 2016

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**June 27<sup>th</sup>- August 19<sup>th</sup>, 2016**

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## ABSTRACT

This study asked listeners to complete a survey indicating their preferences for (a) authentic live sounds which might be encountered in an acoustic environment or in an amplified environment with equipment which does not significantly alter the sound, and (b) processed sounds which might be encountered in recordings of music created in studios with equipment designed to improve and enhance the sound through the addition of various electronic effects including, but not limited to echo, reverb, pitch correction, and sound clip looping.

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## Chapter 1: What can or can't we hear? Why is this important?

The titled of this study is, What Can We Hear A survey of preferences for live and processed sounds. In this study, listeners will complete a survey indicating their preferences for (a) authentic live sounds which might be encountered in an acoustic environment or in an amplified environment with equipment which does not significantly alter the sound, and (b) processed sounds which be encountered in recording of music created in studios with equipment designed to improve and enhance the sound through the addition of various electronic effects including, but not limited to echo, reverb, pitch correction, and sound clip looping.

### Introduction

The music industry has been moving from analog audio recording to digital audio recording and, in doing so, has introduced many processed electronic effects in the music which is produced for the audio listening entertainment of the masses. A new and rising concern is whether or not listeners have the ability to recognize the difference between authentic, live, acoustic sounds and those which have been processed; or have they been so

exposed to auto-corrected, and processed sounds that they cannot tell the difference and prefer the latter.

## **Definitions**

The definition of authentic sounds in this paper is sounds of nature, natural surroundings, natural acoustics, and the use of traditional instruments, the use of live electronic instruments. The definition of processed sounds in this paper is sounds from virtual instruments, auto-corrections systems: i.e. auto-tuning, equalizers, auto-beat correction, reverberation systems, electronic sound plug-ins, electronic sound clips, electronic looping, drum machines, or any other digital method of sound adaptation.

## **Procedures**

In this next year this author will be writing, notating, and recording two original songs using authentic sounds of nature, acoustic instruments, vocals, and live electronic MIDI instruments, and creating versions of the same two original songs but with the additional electronic and/or virtual instruments and virtual effects. Participants will listen to the four recordings then answer questions about them. The background of the participants will be tracked and classified as either music professional, or general population. This author will also report

survey results by age groups, but the specific names and ages of participants will not be identified.

## **Topics**

This paper will present a brief overview of the development in electronic music and instruments since the 1960s. It will also examine the ways the auditory and vocal systems work in the human body. This paper will also examine the recording and production methods used in studios, concerts, and performances. This paper will include explanations of the basic methods used by professional sound engineers and producers using effects during mixing and mix down processes. In addition, a brief look at the physiology and philosophy of human behaviors regarding listening and perception will be included.

## **Need for the Study**

The main question is: do we distinguish what the industry pushes and mass-produces or do we identify pure authentic sounds? Do modern listeners require increasingly artificial and electronically processed sound in order to recognize the creativity and artistry of the music? This study will focus on the responses of untrained listeners to live acoustic sound and electronically altered sounds. This is important, because as music teacher, this writer has observed

that students and performing groups try to mimic modern popular artists' styles, consciously or unconsciously. Many inflections in contemporary music have been processed with effects and/or plug-ins and are not possible for live performers.

Cathryn Frazier-Neely mentioned this problem in her article for the Journal of Singing, May/June 2013 issue:

“There are many electronically produced sounds that students are attempting to vocalize; deliberate nasality, vocal fry, robot-like sounds, and acoustic enhancements are regularly added to recording of popular singing. I strongly suspect that the routine acoustic adjustments made in classical singing recordings cause many classical singers to push or manipulate their technique in an attempt to create sounds that are actually enhanced by processing.”<sup>1</sup>

Popular music has touched, and influenced many areas of our daily lives. It has been on the forefront of the technology for centuries but in the words of Norma Coates, “the tsunami of the digital age hit popular music first.”<sup>2</sup> She also recognizes the strength of its placement there:

The recording industry and popular music are at the leading edge of changes brought about by “new media.” If new media is digital media, and if the study of new media includes inquiries into the impact of digitization upon industries, texts, audiences, business models, delivery technologies, cultural labor, and so on, then the recording industry should be closely

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<sup>1</sup> Frazier-Neely, Cathryn. “Live vs. Recorded: Comparing Apples to Oranges to Get Fruit Salad.” Journal of Singing, May/June 2013. Volume 69, No. 5, pp, 593-596. National Association of Teachers of Singing. 2013.

<sup>2</sup> Coates, Norma. “Sound Studies: Missing the Popular) Music for the Screens? Cinema Journal. 48, No.1, Fall 2008, pp 123-130. University of Texas Press on behalf of the Society for Cinema & Media Studies. <http://www.jstor.org/stable/20484436>

scrutinized as the "canary in the coal mine," experiencing and responding to key challenges in advance of other media sectors.<sup>3</sup>

A recognition of the impact of popular music and a willingness to learn from it is needed, however, a returning to and reconnecting with the organic creation of music is also needed.

## Organization

This paper will address the different methods mentioned above, the history and understanding of music and technology, and the physical ways we make and hear music. The next chapter will explain the process of recording music organically and processing it virtually. Finally, the paper will explain the survey and report the results.

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<sup>3</sup> Coates, Norma. "Sound Studies: Missing the Popular) Music for the Screens? Cinema Journal. 48, No.1, Fall 2008, pp 123-130. University of Texas Press on behalf of the Society for Cinema & Media Studies. <http://www.jstor.org/stable/20484436>



## Chapter 2: The history of electronic and digital age of music, instruments, and the recording process

The earliest recording efforts included etching sound recordings into wet clay using sticks and have progressed through the use of pins and quills on wax cylinders, hammered metal plates (music boxes), the etching of soundwaves onto plastic and vinyl disks, and the use of electro-magnets on iron-coated tape. All of these forms of recording were done through methods of imprinting or pressing the sound waves onto the receiver element. When the electronic age of music started in the early to mid-20th century, the recording methods changed altogether. The first wave of innovators of the modern recording era used analog processors. Shortly thereafter, electronic music innovators began using instruments and inventions to create sounds that were electric, not acoustic. The instruments used electrical currents and synthesized pitches.<sup>456</sup>

The most popular electrical instruments were the electric guitar and electric bass. These instruments were in the limelight because of the 1950s Doo-

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<sup>4</sup> The Telharmonium, the Theremin, the Ondes Martenot, the Trautonium, the Hammon organ, the Novachord, the Analogue Synthesizers, and Digital Synthesizers and more.

<sup>5</sup> Encyclopaedia Britannica. Encyclopaedia Britannica, Inc. Copyright 2015. [www.britannica.com](http://www.britannica.com)

<sup>6</sup> New Grove Music. Grove Music Online (GMO). Oxford Music Online. Oxford University Press. Copyright 2007-2015. [www.oxfordmusiconline.com/public/](http://www.oxfordmusiconline.com/public/).

Wop and early Rock and Roll bands. Unique musical expressions were possible on these instruments through the addition of whammy bars and effect pedals.<sup>789</sup>

In the late 1950s and into the 1960s there were some major events that impacted the electronic music world. One of the first was the Broadcasting Research Centre in Berlin, Germany. There they had started many studies and inventions using “electroacoustics.”<sup>10</sup> During their studies, the scientists, engineers, and musicians developed and produced a synthesizer called the Subhardchord: It is a type of successor of the Trautonium.<sup>11</sup> One of the studios in Germany that used the Subhardchord was the Adlershof Studio.

There are three works from the Adlershof studio that, according to today’s standards, represent truly noteworthy electroacoustic compositions: Sirgfried Matthus’ ‘Galilei’, Bernd Wefelmeyer’s ‘Protest/Studie 1’, and Frederik Rzewski’s ‘Zoologischer Garten’. Of fundamental importance is the fact that none of the three composers – who all had very different approaches and pre-conditions to the work with the Subharchord and electronic material in general- used the Subhardchord as an instrument to be played live, nor did they – as was the case for musicians such as Kurth, Hohensee and Wehding- write a solo part for the instrument that could be played in succession. All three composers integrated sounds that were, although very different, in a broad sense concrete. All three used the

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<sup>7</sup> See the history of Rock and Roll, Hard Rock, 1970’s and 1980’s bands, also they were used in many styles of popular music of the 1990’s and 2000’s.

<sup>8</sup> Encyclopaedia Britannica. Encyclopaedia Britannica, Inc. Copyright 2015. [www.britannica.com](http://www.britannica.com)

<sup>9</sup> New Grove Music. Grove Music Online (GMO). Oxford Music Online. Oxford University Press. Copyright 2007-2015. [www.oxfordmusiconline.com/public/](http://www.oxfordmusiconline.com/public/).

<sup>10</sup> Bohme-Mehner, Tatjana. “Berlin was Home to the First Electronic Studio in the Eastern Bloc: The Forgotten Years of the Research Lab for Inter-disciplinary Problems in Music Acoustics1”. Contemporary Music Review. Vol. 30, No. 1, February 2011, pp. 33-47. Contemporary Music Review is the property of Routledge. Copyright 2011.

<sup>11</sup> Bohme-Mehner, Tatjana. “Berlin was Home to the First Electronic Studio in the Eastern Bloc: The Forgotten Years of the Research Lab for Inter-disciplinary Problems in Music Acoustics1”. Contemporary Music Review. Vol. 30, No. 1, February 2011, pp. 33-47. Contemporary Music Review is the property of Routledge. Copyright 2011.

instrument and the possibilities that the studio offered to cross aesthetic and technical boundaries in a purposeful manner.<sup>12</sup>

During the time of these developments in Germany, there were many other new groups forming around Europe and The United States; for example, the Logos Group from the Royal Conservatory of Ghent developed and created many inventions. One of the founders wrote an article reflecting on his 25-year experience as an “electronic conductor” and his role in the development of experimental electronic instruments, experimental music instruments, and the development of sound-sculpture construction. He described the beginning of electronic sound sculpture and his development of new instruments. He explained his use of analog electronics in the construction of synthesizers.<sup>13</sup>

Meanwhile, an idea for Electronic-acoustics in the theater was developed in Milan, Italy by Berio in his ‘Visage’ during 1960-1961. The piece takes a tape recording of a famous opera singer making sounds, words, and expressions.

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<sup>12</sup> Bohme-Mehner, Tatjana. “Berlin was Home to the First Electronic Studio in the Eastern Bloc: The Forgotten Years of the Research Lab for Inter-disciplinary Problems in Music Acoustics1”. Contemporary Music Review. Vol. 30, No. 1, February 2011, pp. 33-47. Contemporary Music Review is the property of Routledge. Copyright 2011.

<sup>13</sup> Raes, Godfried-Willem. “A Personal Story of Music and Technologies”. Leonardo Music Journal, Vol. 2, No. 1, (1992), pp 29-35. The MIT Press. 1992

While the orchestra is playing, the tape is played, and a live singer also performs.<sup>14</sup>

Most of the Electronic-acoustic composers and developers were trying to test the limits of the traditional concert audiences while testing the limits of traditional compositions, pitches, sounds, instrument usage, and traditional music rules. They were pushing the envelope of musical understanding, science, politics, and the way of living.

This major movement was the more scientific and mathematic developments which inspired synthesizers based on computers. These developments ushered in the digital age of music.

The digital age brought keyboards, synthesizers, and drum machines, as well as reverberation, equalizers, and MIDI sound infusion. Instruments used included Native Instruments FM7, Hammond B-3, Native Instruments B4, Emagic's EVP88, Native Instruments Pro-52, and many others. The digital age also saw a changed in the way recording studios processed sound recordings.

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<sup>14</sup> Causton, Richard. "Berio's 'Visage' and the Theatre of Electroacoustic Music." *Tempo*, New Series. No. 194, Italian Issue (Oct., 1995), pp. 15-21. Cambridge University Press. Copyright 1995.

Analog tape recorders gave way to digital recording using computer-based software such as Pro-tools and Logic, and the distribution of music through compact discs and mp3s.<sup>15</sup>

Brian Smithers wrote an article, comparing electronic instruments and their virtual counterparts. In it, he asked a panel of experts to compare and recognize the original electronic instruments vs the virtual instruments. The panel was put into a controlled room away from the instruments being tested. For most of the testing period the panel could tell the difference between the kinds of instruments and wanted the originals over the virtual ones.<sup>16</sup>

During the test, the virtual instruments could be tweaked to sound and act more like the originals, but the originals could not easily mimic the additional effects of the virtual instruments. Interestingly, most modern musicians and roadies preferred the newer virtual instruments in excess for the original instruments.<sup>17</sup>

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<sup>15</sup> Smithers, Brian. "Is it Real or is it Emulated?" Electronic Musician Magazine. June 2003. Pages 35-43. Primedia Business Magazines and Media, Inc. 2003. [www.emusician.com](http://www.emusician.com)

<sup>16</sup>Smithers, Brian. "Is it Real or is it Emulated?" Electronic Musician Magazine. June 2003. Pages 35-43. Primedia Business Magazines and Media, Inc. 2003. [www.emusician.com](http://www.emusician.com)

<sup>17</sup>Smithers, Brian. "Is it Real or is it Emulated?" Electronic Musician Magazine. June 2003. Pages 35-43. Primedia Business Magazines and Media, Inc. 2003. [www.emusician.com](http://www.emusician.com)

In the end the panel said that the virtual instruments have their place and fit them into the modern requirements of touring and sound effects wanted by today's musicians. They still preferred the original instruments for their authenticity and sound. They said these instruments still have their place in music world.<sup>18</sup>

The last part of this history timeline is the modern day virtual instruments. Some of the most famous electronic and virtual music artists say their music is hours and weeks of studio time for minutes on stage. Others say the live setting is a mix between "DJ"ing and concert staging where they rely on "planned to a point" then "improvised," according to the mood and environment of the audience. Most of these artists spoke about how their music relies on their computer equipment and computer synthesizers.<sup>19</sup>

From the 1950s to today all styles and genres of music have moved to using sound systems and amplification systems for their live and recorded music projects. It also has become a standard to use reverberations and equalization

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<sup>18</sup>Smithers, Brian. "Is it Real or is it Emulated?" Electronic Musician Magazine. June 2003. Pages 35-43. Primedia Business Magazines and Media, Inc. 2003. [www.emusician.com](http://www.emusician.com)

<sup>19</sup> Luta, Primus. "Take it to the Stage: Reflections on Live Laptop Music from Artist" Create Digital Music webpage. Jul. 21, 2009. Create Digital Music. Copyright 2009-2015. <http://createdigitalmusic.com/2009/07/take-it-to-the-stage-reflections-on-live-laptop-music-from-artists/7/3/2015>.

when using these products. The next chapter of this paper will explain these effects in more detail.

### **Chapter 3: Reverberation, Equalizers, and Auto-Correction in Music**

The Merriam-Webster' definition of reverberation is "a sound that echoes, an effect or result that is not wanted."<sup>20</sup> While the dictionary references an unwanted effect, many did not see it that way. Cathedrals were often renowned for their reverberant auditoriums, and ensembles longed to perform in the best of them. In the 1900s, with the use of pedals on pianos and tremolo bowing on string instruments. In the 1970s the electronic reverberation became a desired effect in recording and amplification of sounds because of its ability to make

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<sup>20</sup> Merriam-Webster Dictionary. An Encyclopaedia Britannica Company. Merriam-Webster, Incorporated. Copyright 2015. [www.merriam-webster.com/dictionary/reverberation](http://www.merriam-webster.com/dictionary/reverberation).

instruments or voices fuller and to multiply the amount of intensity and velocity of the pitches.<sup>21</sup>

Leydon states in her article that the traditionalists and purists wanted nothing to do with reverberation in music. She also mentions two orchestra conductors who wanted orchestra music to be more popular and wanted to use the new technology and techniques of recording to produce a more lush enhanced sound.

Just how and how much to enhance musical sounds was a special problem confronting audio engineers in the early history of recording. What the sustain pedal did for the piano in the nineteenth century, audio engineering attempted to do for the full orchestra in the twentieth. Early examples of orchestra sound enhancement include Leopold Stokowski's collaborations with the Bell Laboratories in the 1930s.<sup>22</sup> Stokowski's great aspiration at the time was to sell as many records of the Philadelphia Orchestra as possible, and he was convinced that sophisticated recording technology was the key to the mass popularization of classical orchestral music. Stokowski certainly had no qualms about "enhancing" classical music in other ways, including re-orchestrating and even rewriting whole passages of scores. Fascinated with electronic sound production in general (he once even collaborated on a fingerboard version of the theremin, which he used with the Philadelphia Orchestra in the early 1930s), Stokowski gleefully embraced the audio tricks that the Bell sound engineers put at his service. Techniques included post-production doctoring of the ensemble balance and inserting artificial crescendo. Also

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<sup>21</sup> Leydon, Rebecca. "The Soft-Focus Sound: Reverb as a Gendered Attribute in Mid-Century Mood Music" *Perspectives of New Music*, Vol. 39, No. 2 (Summer, 2001), pp. 96-107. Perspectives of New Music. Copyright 2001.

<sup>22</sup> Leydon, Rebecca. "The Soft-Focus Sound: Reverb as a Gendered Attribute in Mid-Century Mood Music" *Perspectives of New Music*, Vol. 39, No. 2 (Summer, 2001), pp. 96-107. Perspectives of New Music. Copyright 2001.

See R.E. Mc Ginn, "Stokowski and the Bell-Telephone Laboratories: Collaboration in the Development of High-Fidelity Sound Reproduction," in *Technology and Culture* 24/1 (1983): 38-75.

important for the Stokowski sound was the use of multiple-point pickups during the recording process, where extra microphones were positioned to collect the reflected sound of the acoustical background.<sup>23</sup>

In this portion of Leydon's article she describes how Stokowski was a forerunner of moving music into a new era of audio capability and experience. Stokowski's idea was to collaborate, enhance, and widen the lushness of audio soundwaves for the audiences at home to recreate the fullness of sound the orchestra was making at the concert venues. This aspiration was implemented by other conductors and collaborators. Leydon illuminates upon this ideology more in her article.

This kind of close collaboration between conductor and sound technicians later served as a model for musicians and recording studios in the 1950s, who likewise endeavored to market string-orchestras music to newly affluent post-war consumers. One of the best-known examples of this is the hugely successful collaboration between Annunzio Paolo Mantovani and audio engineer Arthur Lilley of the Decca studios in London. The recipient of a rigorous classical music education, Mantovani painstakingly crafted his string arrangements to produce a distinctive texture: dovetailed contrapuntal layers, overlapping melodies, and closely-spaced harmonies – all carefully worked out to produce a sense of “cascading” and billowing waves of strings. Meanwhile, engineer Lilley concentrated on maximizing the echo effects in the studio by removing the carpets and all other absorbent materials. He then positioned ten or twelve separate microphones around and amongst the 28 string players in reinforce both direct and reflected sounds.<sup>24</sup>

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<sup>23</sup> Leydon, Rebecca. “The Soft-Focus Sound: Reverb as a Gendered Attribute in Mid-Century Mood Music” *Perspectives of New Music*, Vol. 39, No. 2 (Summer, 2001), pp. 96-107. *Perspectives of New Music*. Copyright 2001.

<sup>24</sup> Leydon, Rebecca. “The Soft-Focus Sound: Reverb as a Gendered Attribute in Mid-Century Mood Music” *Perspectives of New Music*, Vol. 39, No. 2 (Summer, 2001), pp. 96-107. *Perspectives of New Music*. Copyright 2001.

Because of the involvement of the Decca studios and Mantovani's popularity audiences were becoming enthusiastic to purchase and radio stations to play these recordings with the new enhancement of sound capabilities. Leybon references these actions and Mantovani's perception about his view on influencing his audiences' experiences.

This lush reverberant sound quality proved so successful that between 1953 and 1972, more than fifty of Mantovani's albums achieved chart-topping sales. Eventually, Mantovani became the first musician to sell one million stereo LPs in the United States. He once remarked: "Perhaps twenty-five percent of the people like the Classics, and about twenty-five percent of the people like the Beatles. I aim to please the fifty percent in the middle."<sup>2526</sup>

All of these changes, enhancements, and implementation changed and continued to change the expectations of audio experiences for the audiences and musicians performing.

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<sup>25</sup> Leydon, Rebecca. "The Soft-Focus Sound: Reverb as a Gendered Attribute in Mid-Century Mood Music" Perspectives of New Music, Vol. 39, No. 2 (Summer, 2001), pp. 96-107. Perspectives of New Music. Copyright 2001.

Quoted in Lanza, 84.

<sup>26</sup> Leydon, Rebecca. "The Soft-Focus Sound: Reverb as a Gendered Attribute in Mid-Century Mood Music" Perspectives of New Music, Vol. 39, No. 2 (Summer, 2001), pp. 96-107. Perspectives of New Music. Copyright 2001.

In the 1970s and 1990s the use of equalizers became popular in live and recorded music. The Merriam-Webster' third definition of equalizers is "an electronic device (as in a sound-reproducing system) used to adjust response to different audio frequencies."<sup>27</sup> Equalizers are known in music as EQs, then can be used to change the tones, frequencies: highs, mids, and lows, and the quality of the pitch tones. They can change some of the formations of the sound.

In the 1990s and in modern music styles, virtual instruments and plug-ins increased in popular. Styles like techno and dubstep use sampling and pitch modifiers that bend the pitch, drop or slide the pitch, loop the clip.

In Jones's article he speaks about the way the audience needs to have "reference points" to understand the words or timbers of instruments. He spoke about how it can be more difficult for listeners to understand sounds if they have no vowel sound or speaking sounds. The sounds do not have to be spoken sounds; however, our brains need us to hear the unformed audible word sounds for us to make mental data for understanding.<sup>28</sup>

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<sup>27</sup> Merriam-Webster Dictionary. An Encyclopeda Britannica Company. Merriam-Webster, Incorporated. Copyright 2015. [www.merriam-webster.com/dictionary/equalizers](http://www.merriam-webster.com/dictionary/equalizers).

<sup>28</sup> Jones, David Evan. "Speech Extrapolated" Perspectives of New Music, Vol. 28, No. 1 (Winter, 1990), pp. 112-142. Perspectives of New Music. Copyright 1990.

Another type of sound effecting is a new method of correcting pitches called Auto-tuning: i.e. products Auto Tone and Melodyne. Many famous artists and studios are using this method of processing sounds in live performances and in recording sessions. The major public examples of this method are T-pain, Cher, and Michael Jackson,<sup>2930</sup>

In McGowan's thesis he mentions the history and the first usage of Auto-tuning.

Whereas digital synthesizers and samplers primarily play back sonic information without (necessarily) fusing it with anything else, Auto-Tune is, in essence, a resynthesizer: like the Vocoder, which imposes a spectral analysis upon an outside source (thereby producing a unique vocal effect), Auto-Tune imposes a quantized DSP analysis upon an external vocal source. Auto-Tune essentially blurs the distinction between sampling and synthesis by sampling (through digital recording consoles) a singer's voice, performing various DSP modifications and corrections to the digital signal, and fusing those modifications back into the digitally recorded vocals. Auto-Tune, therefore, can be considered a modern, digital successor of earlier vocal processing and resynthesis effect technology (a la the Vocoder). ....<sup>31</sup>

Through Taylor and Rawling's creativity and experimentation with Auto-Tune's various settings, the duo discovered that the program could be used to generate a unique vocal effect in addition to a pitch-correction. The discovery of the *Cher-effect* recast Auto-Tune as both a pitch-correction editing software program and a vocal effect signal processor akin to the vocoder in its general sound. Hildebrand's original software has

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<sup>29</sup>Frazier-Neely, Cathryn. "Live vs Recorded: Comparing Apples to Oranges to Get Fruit Salad". Journal of Singing, May/June 2013. Vol. 69, No. 5, pp. 593-596. National Association of Teaching of Singing. Copyright, 2013.

<sup>30</sup> McGowan, Matthew. "Auto-Tune's Effect on Musicians, Genres, and Culture." Carleton University. Ottawa, Ontario. May 14, 2012. Copyright Matthew McGowan 2012.

<sup>31</sup> McGowan, Matthew. "Auto-Tune's Effect on Musicians, Genres, and Culture." Carleton University. Ottawa, Ontario. May 14, 2012. Copyright Matthew McGowan 2012.

also grown to become quite versatile in more recent versions: Auto-Tune 7 (the most recent edition) not only allows the user to “instantaneously detect the pitch of the input, [identify] the closest pitch in a user-specified scale (including minor, major, chromatic and 26 historical and microtonal scales), and [correct] the input pitch to match the scale pitch,<sup>32</sup> but also provides a new time correction and manipulation system, which allows producers and/or engineers “to quickly and easily edit the timing of your vocals right along with their pitch.”<sup>33</sup> Antares Audio Technologies have also expanded Auto-Tune into a platform for which a number of spin-off vocal processing plugins have been developed, known as the *AVOX EVO Tool Kit*, which further augment and increase the software’s vocal effect capabilities.<sup>34</sup>

McGowan talks more in detail about the different ways Auto-tuning has been used in popular and hip-hop music. In the popular music most of the corrections tuning effects were used to improve and enhance the music fluidly. However, in hip-hop and rap the Auto-tuning effects were used in the opposed manner to distort and cause other effects.<sup>35</sup>

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<sup>32</sup> McGowan, Matthew. “Auto-Tune’s Effect on Musicians, Genres, and Culture.” Carleton University. Ottawa, Ontario. May 14, 2012. Copyright Matthew McGowan 2012.

“Antares Auto-Tune 7 Pitch and Time Correcting Plug-In,” Antares Audio Technologies, accessed February 16, 2012, <http://www.antarestech.com/products/auto-tune-7.shtml>.

<sup>33</sup> McGowan, Matthew. “Auto-Tune’s Effect on Musicians, Genres, and Culture.” Carleton University. Ottawa, Ontario. May 14, 2012. Copyright Matthew McGowan 2012.

“Antares Auto-Tune 7 Pitch and Time Correcting Plug-In,” Antares Audio Technologies, accessed February 16, 2012, <http://www.antarestech.com/products/auto-tune-7.shtml>.

<sup>34</sup> McGowan, Matthew. “Auto-Tune’s Effect on Musicians, Genres, and Culture.” Carleton University. Ottawa, Ontario. May 14, 2012. Copyright Matthew McGowan 2012.

<sup>35</sup> McGowan, Matthew. “Auto-Tune’s Effect on Musicians, Genres, and Culture.” Carleton University. Ottawa, Ontario. May 14, 2012. Copyright Matthew McGowan 2012.

Frazier-Neely's article describes the effects of processing equipment on what the audience hears and teaching vocal lessons to students. She compares a live recording of an artist when no effects or processing equipment were used a contemporary recording done live or in the studio using processing equipment for pitch corrections, reverberation, and other effects. She mentions that the untrained vocal musicians are trying to mimic and use techniques to make sounds that are not made by vocal cords but, by machines and effects. She talks about how these trends have affected the students physically as they try to produce these sounds. She also mentions judging a competition where the judging board could not tell if the strong performances of the competitors were due to sound processing or to talent and proper performance technique. Because of this conflict, the council and The Kennedy Center changed their regulations and restrictions for future competitions. She also explained her experience being a vocal trainer for professional studios and how artists can benefit from training physically for recording instead of relying on the sound mastering equipment. Her conclusion was that everything having its place and we need to use both traditional study and modern technology to work together to show the artists' true talents and abilities. <sup>36</sup>

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<sup>36</sup> Frazier-Neely, Cathryn. "Live vs Recorded: Comparing Apples to Oranges to Get Fruit Salad". Journal of Singing, May/June 2013. Vol. 69, No. 5, pp. 593-596. National Association of Teaching of Singing. Copyright, 2013.

The focus of this project is to see how listeners hear the sound recordings and what they prefer. This researcher in her teaching experience has encountered students who strongly fit with Frazie-Neely's description of untrained students. This study will examine audio acoustic understanding and recognition points, and will examine the impact of processed musical effects on how audiences hear music in general.<sup>3738</sup>

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<sup>37</sup>Jones, David Evan. "Speech Extrapolated" Perspectives of New Music, Vol. 28, No. 1 (Winter, 1990), pp. 112-142. Perspectives of New Music. Copyright 1990.

<sup>38</sup> Frazier-Neely, Cathryn. "Live vs Recorded: Comparing Apples to Oranges to Get Fruit Salad". Journal of Singing, May/June 2013. Vol. 69, No. 5, pp. 593-596. National Association of Teaching of Singing. Copyright, 2013.

## **Chapter 4: The Recording and Survey Project Ideas**

This chapter will be describing the process used to make recording samples and to create the survey. The ten months before the thesis project was

used to plan, make, and gather all the materials needed for data collection and statistical analysis.

This project is a Production Thesis. This is one in which a production project is created (such as audio recording, video recording, or other media) then data analysis is done regarding the project. For this study, the project media will be an audio recording.

The recording portion of this project will consist of two original sounds composed by the author. Two versions of the songs will be created, one using authentic sounds and one using authentic sounds with effects. Recording of those two songs will be used to test the hearing and perceptions of the audience to determine their ability to distinguish between authentic and processed sounds and to determine their reactions to and preferences of each. The responses of music professional and of the general public will be tracked. The study will use a narrative quantitative method of research and data collection. The author will maintain a log documenting the collection of the materials, and the various resources used: mics, recording programs, composition, programs, hardware equipment, software/virtual equipment and plug-ins. Included in this log will be a description of the collection of the recording samples of natural, singing, and

instrumental sounds; the process used for composing and notating the original songs. The log is found in Appendix A. Permission will be requested for the use of copyrighted materials in this paper (such as lyrics used in one of my original songs). Permission will be sought to distribute the survey to the professional community of St. Mary's County Public School Music Teachers. Copies of the letters requesting permission are found in Appendix C. The survey will also be distributed to the public through Facebook, Google Plus, Twitter, and open forums. Survey Monkey or Google Survey will be used for the collection of data. Copies of the survey and survey results are found in Appendix B.

I made a CD before entering my graduate studies. During that three-year process of learning the material, practicing, performing the songs, and going to the recording studio for five months to record or talk about the balance of tracks, sounds, and effects I wanted processed in their recording project, my interest piqued in the world of production and understanding increased as an artist. During that project and the next four years my composing interest came back too. So naturally I wanted my project to contain some of my original compositions. During my studies I kept having the same conversations and finding articles about problems I was experiencing with some vocal students and teen worship bands I was coaching. The youth were having trouble with trying to

mimic the sounds of the artists' sounds they wanted to cover. Clearly, they were trying to create and reproduce the sounds in the recordings they heard. However, the sounds they were trying to sing were effects in the recordings and live concerts through processed effects, auto-correction, and plug-ins. That pushed me to research the history of electronic and digital music and the areas of processed sounds, acoustics, effects, and their usages.

The next step was to implement and create the project. Throughout 2015 and 2016 creation process, I wrote two original songs with lyrics expanding from a friend's poem and from a question I had for another friend. Next came a melody that flowed in my head; I immediately grabbed my phone and recorded into an audio note. Later I would use Finale and notate the songs out into scripted form.

As this summer progressed and the projects moved forward, the recording process was implemented trying to use ProTools and Reason audio recording software. I would transfer sounds clips I created over the year in GarageBand, sound clips provided to them by Dr. Richmond, and recorded audio tracks of myself singing or playing instruments into the programs. Later I would use compressions, reverb, percussion box, the echo, Neptune pitch adjustor, and

softube guitar amp to edit and change the authentic natural sounds recorded into the programs. When all that was done. The creations of mini sound clips and videos were made for the creation of the survey. The survey was constructed in a Google form, and questions were created to reflect each type of sound sample in general without influencing on either side the authentic natural sound or the edited effected sound. Finally, the survey was sent to the participants for implementation.

## **Chapter 5 – Survey Summary and Conclusion**

Over the past year of research and development of this thesis project there was an idea that music that had been electronically enhanced would be preferred by the majority of survey participants. However, the results of this thesis survey did not support that conclusion. Surprisingly, each survey respondent's preference were uniquely personal and no strong trends emerged.

### **Results**

At the end of the 12-day survey window there were 70 responses. The majority of responses came through the Facebook requests and private messages. The more people spoke about the survey in their Facebook feeds the more people responded. Also, the more people sharing the requests the more visibility the survey received.

The largest responding age group range was the 30-39 year-olds at 38.6%. The next largest responding age group range was the 40-49 year-olds at 21.4%.

“Table 1” presents a summary of all responses classified by age.

**Table 1**  
**Respondents Classified by Age**

Ages 10 to 19	2.9%
Ages 20 to 29	12.9%
Ages 30 to 39	38.6%
Ages 40 to 49	21.4%
Ages 50 to 59	14.3%
Ages 60 to 69	8.6%
Ages 70 to 79	1.4%
Ages 80 to 89	0%
Ages 90 and up	0%

In their musical background categories, the largest group was the audience member at 54.3%. The next largest musical background category was the amateur musician at 38.6%. A summary of all results is found in “table 2.”

**Table 2**  
**Respondents Classified by Music Background**

Audiences Member	54.3%
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Amateur Musician	38.6%
Professional Musician	7.1%

In the survey each listener was able to identify whether the sound was instrumental, vocal, or natural. Likewise, listeners were able to identify the sound effects used on electronically enhanced recordings. The listeners did, however, rate the quality of the various sound samples differently. Specific results are summarized in the narrative and charts below.

Sample 1 A, was of natural sounds of animals, insects, and a bonfire with sound effects added. Participants were asked to identify those sounds and effects listed below. There were 66 responses to this listening task. Participants were able to identify the effects used. Responses of participants are summarized in “table 3.”

**Table 3**  
**Sound Sample 1 A Results of Identification of Sounds and Effects Used**

<b>Musical Element Present</b>	<b>Percent</b>
Nature Sounds	94.3%
Echoes	58.6%
Crispness	41.4%
Brightness	12.9%

Clarity	10%
Pitchy	18.6%

Sample 1 B, was the comparison sound clip with natural sounds of animals, insects, and a bonfire without sound effects added. Participants were asked to identify those sounds and effects listed below. There were 68 responses to this listening task. The responses of participants are summarized in “table 4.”

**Table 4**  
**Sound Sample 1 B Results of Identification of Sounds and Effects Used**

<b>Musical Element Present</b>	<b>Percent</b>
Nature Sounds	97.1%
Echoes *	37.1%
Crispness	55.7%
Brightness	8.6%
Clarity**	31.4%
Pitchy	4.3%

\*The responders identified an echo effect though there was no electronic effect applied.

\*\*Responders identified clarity as a property of this sound.

Sample 2 A, was a panpipe, wind chimes, and the natural sounds using sound effects added. There were 69 responses to this task. The responses are summarized in “table 5.”

**Table 5**  
**Sound Sample 2 A Results of Identification of Sounds and Effects Used**

<b>Musical Element Present</b>	<b>Percent</b>
Instruments	98.6%
Pitchy*	14.3%
Airiness	80%
Clarity	5.7%
Brightness	12.9%
Crispness	32.9%

\*Few responders report the pitchyness of the instruments.

Sample 2 B, was a panpipe, wind chimes, and the natural sounds using sound without effects added. There were 55 responses to this task. The responses are summarized in “table 6.”

**Table 6**  
**Sound Sample 2 B Results of Identification of Sounds and Effects Used**

Musical Element Present	Percent
Instruments	78.6%
Pitchy*	45.7%
Airiness**	85.7%
Clarity	22.9%
Brightness	18.6%
Crispness***	15.7%

\*More responders identified the pitchiness in this sample.

\*\*More responders identified the airiness in this sample.

\*\*\*Few responders identified the crispness of the instrument sounds in this sample.

Sample 3 A, was a female voice singing the melody with the natural effected sounds added. There were 67 responses to this task. The responses are summarized in “table 7.”

**Table 7**  
**Sound Sample 3 A Results of Identification of Sounds and Effects Used**

Musical Element Present	Percent
Female singing vocals	95.7%
Brightness	7.1%
Clarity	4.3%

Airiness	58.6%
Fullness	19%
Breath control	15.7%
Echo	80%
Pronunciation	4.3%
Diction	5.7%

Sample 3 B, was the comparison sound clip without any effects added to the voice. There were 69 responses to this task. The responses are summarized in “table 8.”

**Table 8**  
**Sound Sample 3 B Results of Identification of Sounds and Effects Used**

Musical Element Present	Percent
Female singing vocals*	98.6%
Brightness**	5.7%
Clarity**	55.7%
Airiness***	10%
Fullness****	24.3%
Breath control****	58.6%
Echo***	1.4%

Pronunciation****	67.1%
Diction****	42.9%

\*More responders identified the female sing voice in this sample.

\*\*Few responders heard the brightness and clarity in this sample.

\*\*\*7 responders (10%) identified any airiness in this sample 3b; which is a drastic change from the 41 respondents (58.6%) in sample 3a. There were responders who had identified an echo effect even though there was no electronic effect applied in this sample.

\*\*\*\* 17 responders (24.3%) identified the fullness in the sample; which is a drastic change from 7 responders (10%) in sample 3a. 41 respondents (67.1%) identified the breath control of the singer in this sample; which is also a drastic change from the 11 respondents (15.7%) in sample 3a. 47 respondents (67.1%) identified the pronunciation in this sample; which is also again a drastic change from the 3 respondents (4.3%) in sample 3a. 30 respondents (42.9%) identified the diction of the words and musical phrases in the sample; which is also a drastic change from the 4 respondents (5.7%) in sample 3a.

### Samples 6 A and B are the full versions of “The Shepherd’s Song”

recorded with effects and without effects. Sound clips 1 through 3 came from these samples. For these samples the survey used a fill-in-the-blank answer section for the preferences of the respondents. In the 70 written responses the reasons people preferred the different song samples varied. The overall preference was sample 6 B with sound effects, with 49 responses in its favor. Again, the responses varied in answers from just saying “6 B” to “It has a more fantasy feel to it, the sounds are more distant. The flute sounds are really breathy and not full in either, but in 6 B the flute sounds more like it is supposed to be breathy like that.” Another respondent said, “it’s spooky like it is from a horror film.” Sample A without effects received 18 responses in its favor, mostly because the natural animal sounds were clear. There were a few responses that were not helpful because the responder gave no answer, or their preference was

that they like both samples, or that their preference was that they did not like either samples.

Sample 4 A, was the sound clip of an ukulele, guitar effect on the ukulele, and other effects added. Participates were asked to identify those sound and effects listed below. There were 47 responses to this listening task who identified the effects used. Responses of participants are summarized in “table 9.”

**Table 9**  
**Sound Sample 4 A Results of Identification of Sounds and Effects Used**

Musical Element Present	Percent
Ukulele	52.9%
Guitar*	54.3%
Echoes**	10%
Choppiness***	67.1%
Fullness	5.7%
Clarity	14.3%
Richness	11.4%
Darkness	1.4%

\*54.3% of the respondents identified the guitar effect on the ukulele.

\*\*Only seven respondents were able to hear the echo effect on the instrument.

\*\*\*47 respondents (67.1%) identified the choppiness of the strum strokes.

Sample 4 B, was the same sound clip of the ukulele without effects.

Participants were asked to identify those sounds and effects listed below. There

were 55 respondents in this listening task who identified the effects used.

Responses of participants are summarized in “table 10.”

**Table 10**  
**Sound Sample 4 B Results of Identification of Sounds and Effects Used**

Musical Element Present	Percent
Ukulele	78.6%
Guitar*	27.1%
Echoes**	1.4%
Choppiness***	37.1%
Fullness	8.6%
Clarity****	38.6%
Richness	21.4%
Darkness	0%

\* 27.1% of the respondents identified the guitar effect on the ukulele even though there was no electronic effect applied.

\*\*1.4% of the respondents identified an echo effect though there was no electronic effect applied.

\*\*\* The number of respondents that were able to identify the choppiness of the strum strokes dropped down to 26 respondents (31.1%) from 47 respondents (67.1%); which is a 36% decrease.

\*\*\*\*The number of respondents that were able to identify the clarity of the sound clip increased to 27 respondents at 38.6%.

Sample 5 A, was the sound clip of a female voice without effects.

Participants were asked to identify those sound and effects listed below. There

were 68 respondents in this listening task who identified the effects used.

Responses of participants are summarized in “table 11.”

**Table 11**  
**Sound Sample 5 A Results of Identification of Sounds and Effects Used**

Musical Element Present	Percent
-------------------------	---------

Female singer voice	97.1%
Percussion*	5.7%
Echo	1.4%
Brightness	17.1%
Fullness	5.7%
Clarity	30%
Airiness	7.1%
Breath control	34.3%
Pronunciation	62.9%
Diction	38.6%

\*The responders identified a percussion effect though there was no electronic effect applied.

Sample 5 B, was the comparison sound clip of a female voice with sound effects added and an auto percussion loop added as well. Participates were asked to identify those sound and effects listed below. There were 67 respondents in this listening task who identified the effects used. Responses of participants are summarized in “table 12.”

**Table 12**  
**Sound Sample 5 B Results of Identification of Sounds and Effects Used**

Musical Element Present	Percent
Female singer voice	95.7%
Percussion**	78.6%
Echo**	85.7%
Brightness*	2.9%
Fullness	10%

Clarity*	5.7%
Airiness**	34.3%
Breath control	15.7%
Pronunciation*	25.7%
Diction*	17.1%

\*The responders reported that the breath control, pronunciation, diction, and clarity decrease greatly with the usage of the effects.

\*\*The responders reported the ability to identify the use of percussion looping, echo, and airiness in this sample.

Samples 7 A and B are the full versions of “Hay, What’s Goin’ On?” recorded with effects and without effects. Sound clips 4 through 5 came from these samples. For these samples the survey used a fill-in-the-blank answer section for the preferences of the respondents. In the 70 written responses, the reason for the various preferences given by the participants varied. Overall, sample B was the favored choice of the respondents with 58 responses in favor of it because they preferred the simplicity and clarity of just the female vocals and ukulele in this sound recording. Only 8 respondents preferred the full sound recording with effects and the usage of the auto percussion looping. Two of the respondents’ comments could not be used because the respondents’ preference was that they like both samples or that their preference was that they did not like either samples. Most of the comments ranged from “7 B” to “7 B is more pleasing with the vocals carrying the melody in the foreground. The guitar and vocals not being in concert works better with the guitar being in the background”

to “The singing doesn’t have a distracting echo and the ukulele isn’t louder than the singer.”

The comparison of responses of the two different songs was surprising in that in the first set of recordings the overall group preferred the recording with the effects added and thought that the effects fit the style of the song. In the second set of recordings the overall group surprisingly preferred the simplicity of a voice and instrument without effects because it was more pleasing and fitting to the song style. As mentioned earlier, personal preference is affected by a person’s background, the style of a song, and the way a song “grabs” a person. The overall conclusion is that the audience can hear live sound and effected sound equally well. They preferred songs that tell stories and that everything in the sound recordings fit together for a pleasing audio experience.

## **Appendix**

### **Appendix A: The Log/Blog of this Production Thesis Project**

July 6-10, 2015 - Took courses from the University of Valley Forge on ProTools 101 and 110, Introduction to the Audio Recording Program.

July 20-24, 2015 - Took course from University of Valley Forge on Notating and Recording Programs for iPads.

July 20-24, 2015 - Writing and notating one of the original songs used in this project. Learning about DOWs program usage of GarageBand. Learned how to make sound clips, songs, and samples in the musical recording program. GarageBand became one of the sound production materials used in this project from here on.

September 30, 2015 - Used GarageBand for iPad to record and make a sound clip of crickets chirping in and around Leonardtown, MD.

October 10, 2015 – Used GarageBand for iPad to recorded and make a sound clip of a bonfire crackling and hissing in Hollywood, MD.

October 10, 2015 – Used GarageBand for iPad to recorded and make a few sound clips of crickets chirping and other nature sounds in Hollywood, MD.

December 29, 2015 – Used GarageBand for iPad to recorded and make a sound clip of crickets chirping in Richmond Hill, GA.

December 29 and 30, 2015 - Used GarageBand for iPad to recorded and make sound clips of crickets chirping in around Richmond Hill, GA.

December 30, 2015 - Used GarageBand for iPad to try to record dogs barking and howling. The recording session was not a success the dogs were not cooperating and background news distorted the sound clips.

January 2, 2015 – Used GarageBand for iPad to recorded and make sound clip of crickets chirping in Leonardtown, MD.

June 7, 2016 - Went to Fredericksburg, VA to purchase from Guitar Center ProTools Music Recording Program software, Shure SM7B cardioid dynamic microphone, Scarlett 2i4 audio interface, and microphone cables.

June 27-July 1, 2016 - Went to the University of Valley Forge to take ProTools 201 and 210 courses.

July 5-8, 2016 - Took a course on Advance Sequencing from the University of Valley Forge on different audio DOW and their usages.

July 5-8, 2016 - Learned about and used Reason audio recording software to import the GarageBand sound clips and a sound clips from Dr. Richmond. Used this software to record audio and instrument tracks. Finalized both songs being used in thesis survey. This program was also used to start making the sound sample clips used in thesis survey.

July 5-8, 2016 - Had trouble with ProTools program on computer. Had to troubleshoot and figure out what the issues and errors that were occurring during usage. Ended up only starting a recording project and having to not use it for the thesis project.

July 7, 2016 - Had to purchase a Lacie Thunderbolt drive for computer. This driver helped ProTools work a little better. However, did not solve the major issue that was occurring during usage.

July 8, 2016 - Used Audacity to cleanup and shorten sound clips. This program was also used to make sound clips from one of the songs after the sound clips files were lost in the Reason trail program settings.

July 8, 2016 - Survey was started to be developed in Google Form document.

July 10, 2016 - Found out that Google Forms and Survey Monkey platforms do not support audio imports. Tried making audio clips into a format that could be used as an audio file. However, it still did not work. Ended up having to obtain help from Dr. Richmond turning the audio files into movie files.

July 11, 2016 - Uploaded the new movie files onto YouTube. Then imported the YouTube URLs into Google Form, which is supported by the platform for usage. Then continued to update and refine thesis survey questions, lay out, video clips, and introduction paragraph.

July 12, 2016 - Letters about distributing the survey and usage of materials were mailed out. There was initial contact with some of the contacts in July of 2015.

July 12, 2016 - Surveys were emailed and messaged out to the selected audience.

July 12-19, 2016 - Survey results were collected by Google Forms platform.

**Appendix B:  
Potential and Official Survey Information**

**Potential Survey Questions**

Age ranges: 5-10, 11-19, 20-29, 30-39, 40-49, 50-59, 60-69, 70-79, 80-89, 90-

Music background: Professional Musician, Amateur Musician, Audience Member

The six questions are to discover what people hear when listening to recordings.

Listen to sample **one** and then answer these questions:

- 1) What sounds do you hear? panpipe, female singer, nature sounds **or** panpipe, female singer, nature sounds, echo, brightness, crispness, smoothness, and darkness.

Listen to sample **two** and then answer these question:

- 2) What sounds do you hear? panpipe, female singer, nature sounds **or** panpipe, female singer, nature sounds, echo, brightness, crispness, smoothness, and darkness.

Listen to sample **three** and then answer these questions:

- 3) What sounds do you hear? panpipe, female singer, nature sounds **or** panpipe, female singer, nature sounds, echo, brightness, crispness, smoothness, darkness.

Listen to sample **four** and then answer these questions:

- 4) What sounds do you hear? Ukulele, female singer, and percussion **or** Ukulele, female singer, percussion, guitar, echo, brightness, crispness, smoothness, darkness, fullness, and choppiness.

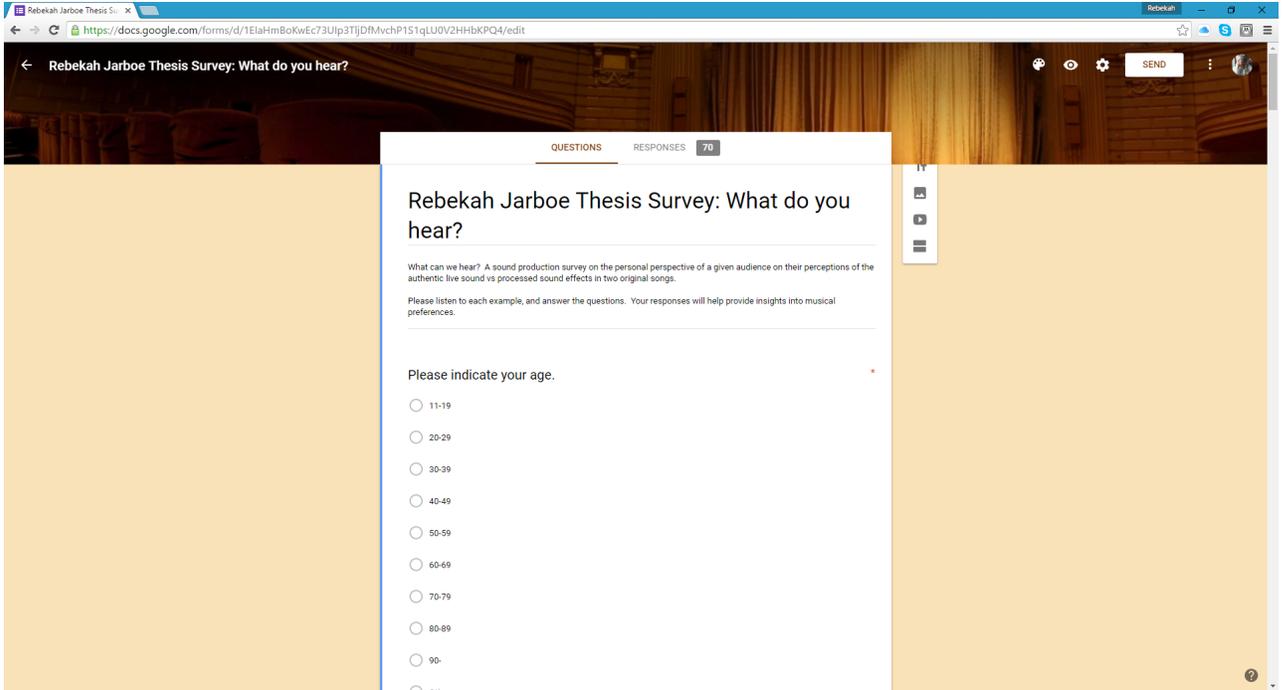
Listen to sample **five** and then answer these questions:

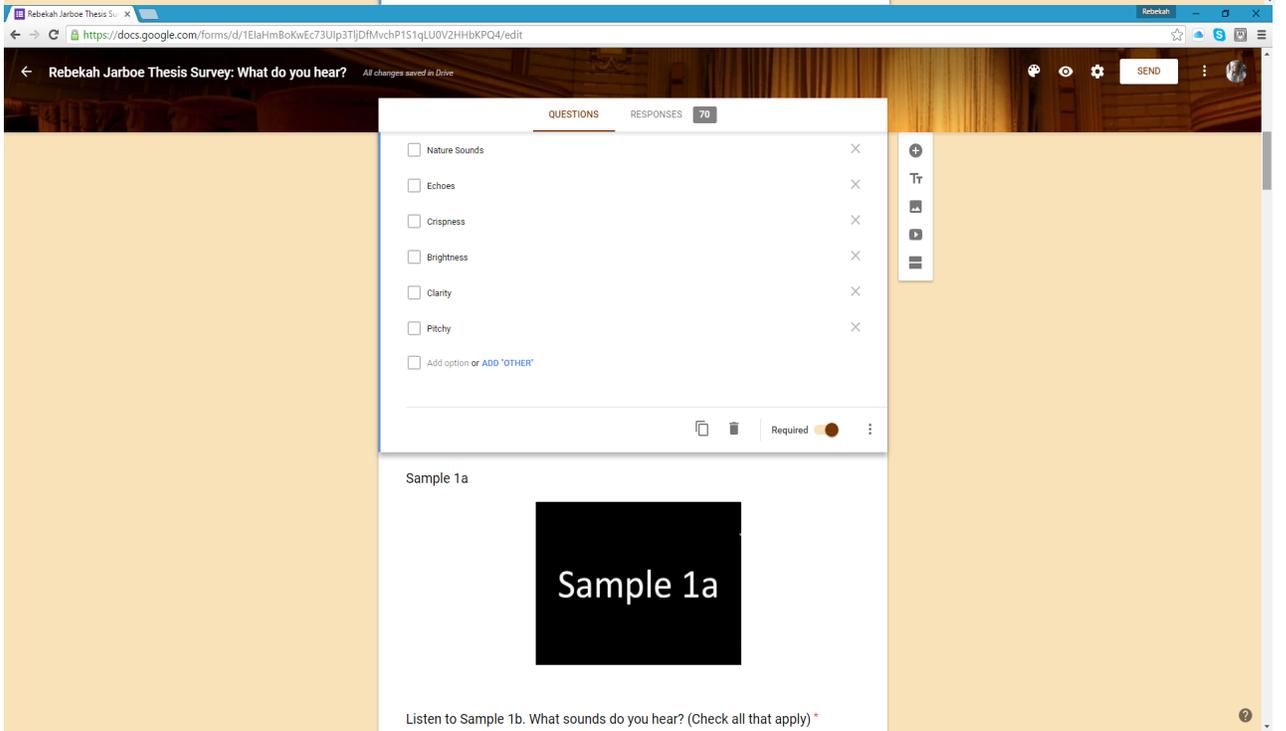
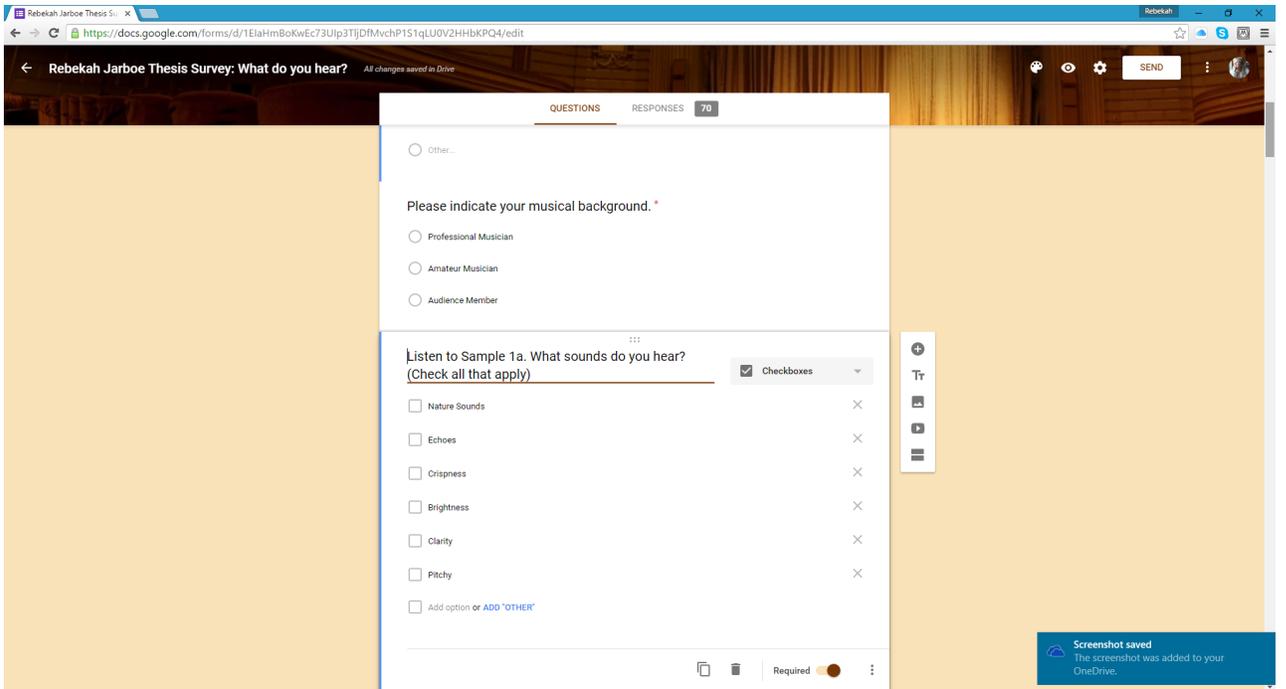
- 5) What sounds do you hear? Ukulele, female singer, and percussion **or** Ukulele, female singer, percussion, guitar, echo, brightness, crispness, smoothness, darkness, fullness, and choppiness.

Listen to samples **six** and **seven** (full song versions) and then answer this question:

- 6) What is your preference between these two recording samples and why?

**Official Survey Form**





Rebekah Jarboe Thesis Survey: What do you hear? All changes saved in Drive

QUESTIONS    RESPONSES    70

Listen to Sample 1b. What sounds do you hear? (Check all that apply) \*

- Nature Sounds
- Echoes
- Crispness
- Brightness
- Clarity
- Pitchy

Sample 1b



Sample 1b

Rebekah Jarboe Thesis Survey: What do you hear? All changes saved in Drive

QUESTIONS    RESPONSES    70

Listen to Sample 2a. What sounds do you hear? (Check all that apply) \*

- Instruments
- Pitchy
- Ainess
- Clarity
- Brightness
- Crispness

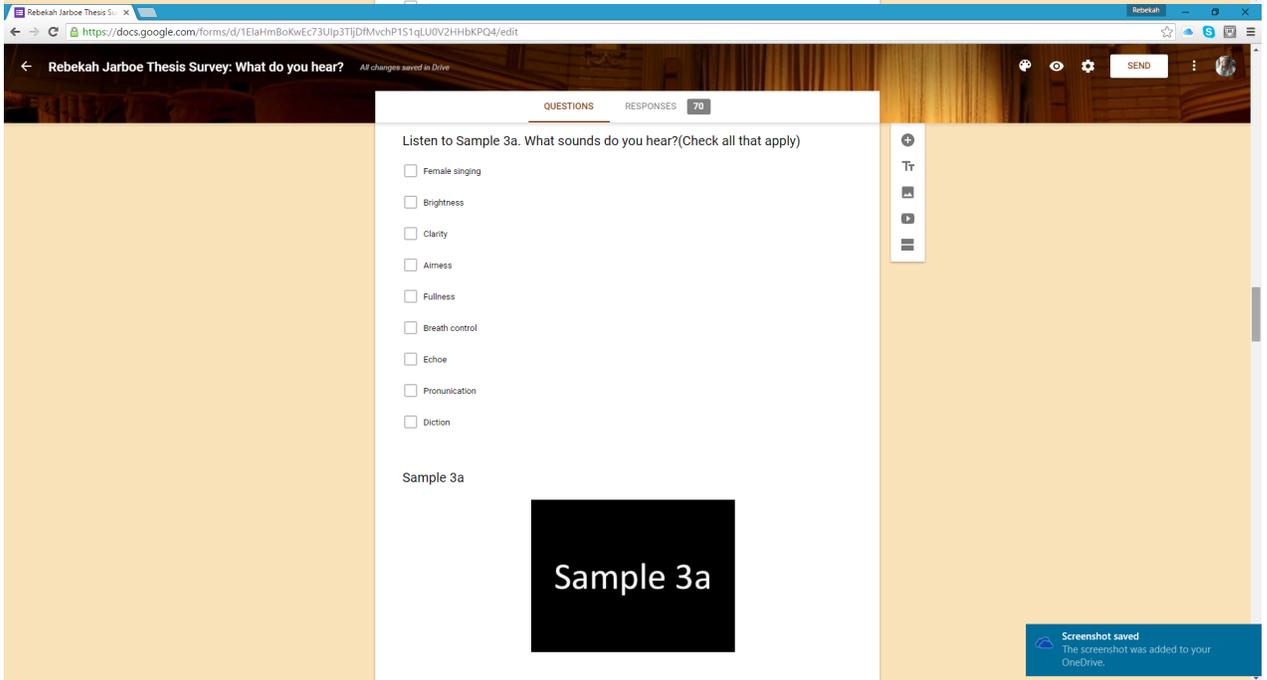
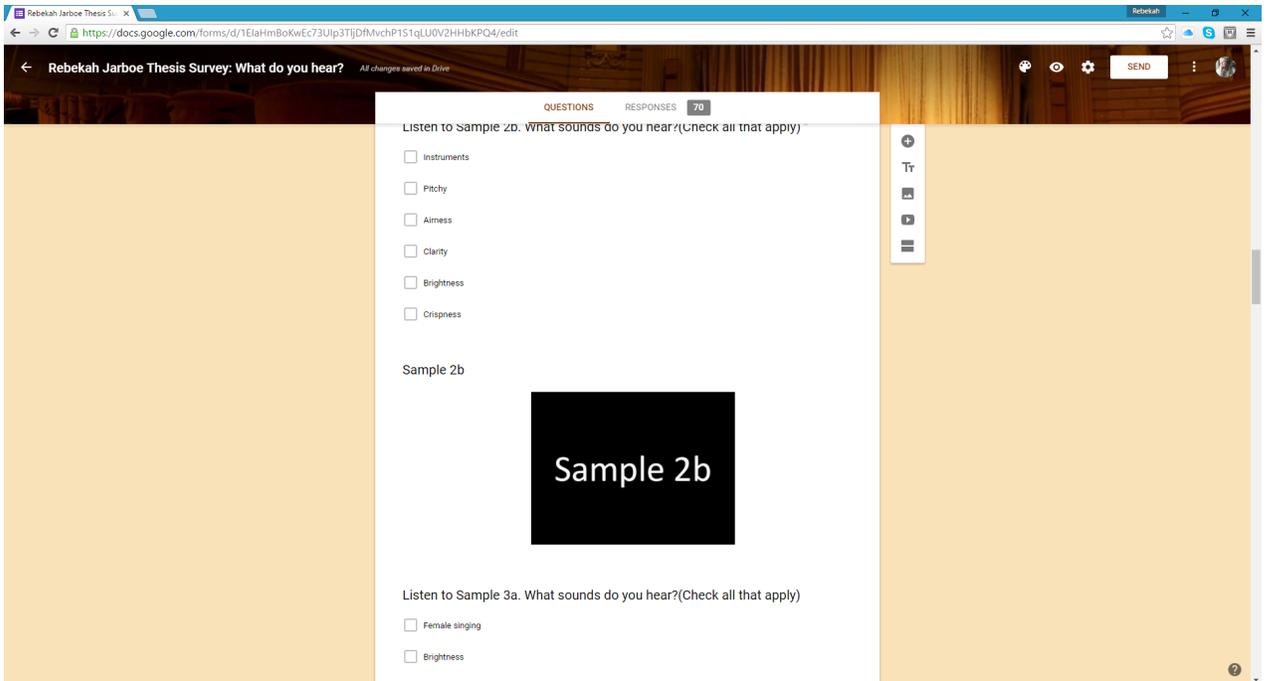
Sample 2a



Sample 2a

Listen to Sample 2b. What sounds do you hear?(Check all that apply) \*

- Instruments



Rebekah Jarboe Thesis Survey: What do you hear? *All changes saved in Drive*

QUESTIONS RESPONSES 70

Listen to Sample 3b. What sounds do you hear? (Check all that apply) \*

- Female singing
- Brightness
- Clarity
- Airiness
- Fullness
- Breath control
- Echoe
- Pronunciation
- Diction

Sample 3b



Screenshot saved  
The screenshot was added to your OneDrive.

Rebekah Jarboe Thesis Survey: What do you hear? *All changes saved in Drive*

QUESTIONS RESPONSES 70

Listen to Sample 4a. What sounds do you hear? (Check all that apply) \*

- Ukulele
- Guitar
- Echoes
- Choppiness
- Fullness
- Clarity
- Richness
- Darkness

Sample 4a



Listen to Sample 4b. What sounds do you hear? (Check all that apply) \*

Screenshot saved  
The screenshot was added to your OneDrive.

Rebekah Jarboe Thesis Survey: What do you hear? All changes saved in Drive

QUESTIONS RESPONSES 70

Listen to Sample 4b. What sounds do you hear? (Check all that apply) \*

- Ukulele
- Guitar
- Echoes
- Choppiness
- Fullness
- Clarity
- Richness
- Darkness

Sample 4b



Listen to Sample 5a. What sounds do you hear? (Check all that apply) \*

There are 10 new feeds

Rebekah Jarboe Thesis Survey: What do you hear? All changes saved in Drive

QUESTIONS RESPONSES 70

Listen to Sample 5a. What sounds do you hear? (Check all that apply) \*

- Female singer
- Percussion
- Echoes
- Brightness
- Fullness
- Clarity
- Aimess
- Breath control
- Pronunciation
- Diction

Sample 5a



You have 4 App updates available

Rebekah Jarboe Thesis Survey: What do you hear? *All changes saved in Drive*

QUESTIONS RESPONSES 70

Listen to Sample 5b. What sounds do you hear? (Check all that apply) \*

- Female singer
- Percussion
- Echoes
- Brightness
- Fullness
- Clarity
- Airtiness
- Breath control
- Pronunciation
- Diction

Sample 5b



Sample 5b

Rebekah Jarboe Thesis Survey: What do you hear? *All changes saved in Drive*

QUESTIONS RESPONSES 70

Listen to Samples 6a and 6b. Which do you prefer and why? \*

Long answer text

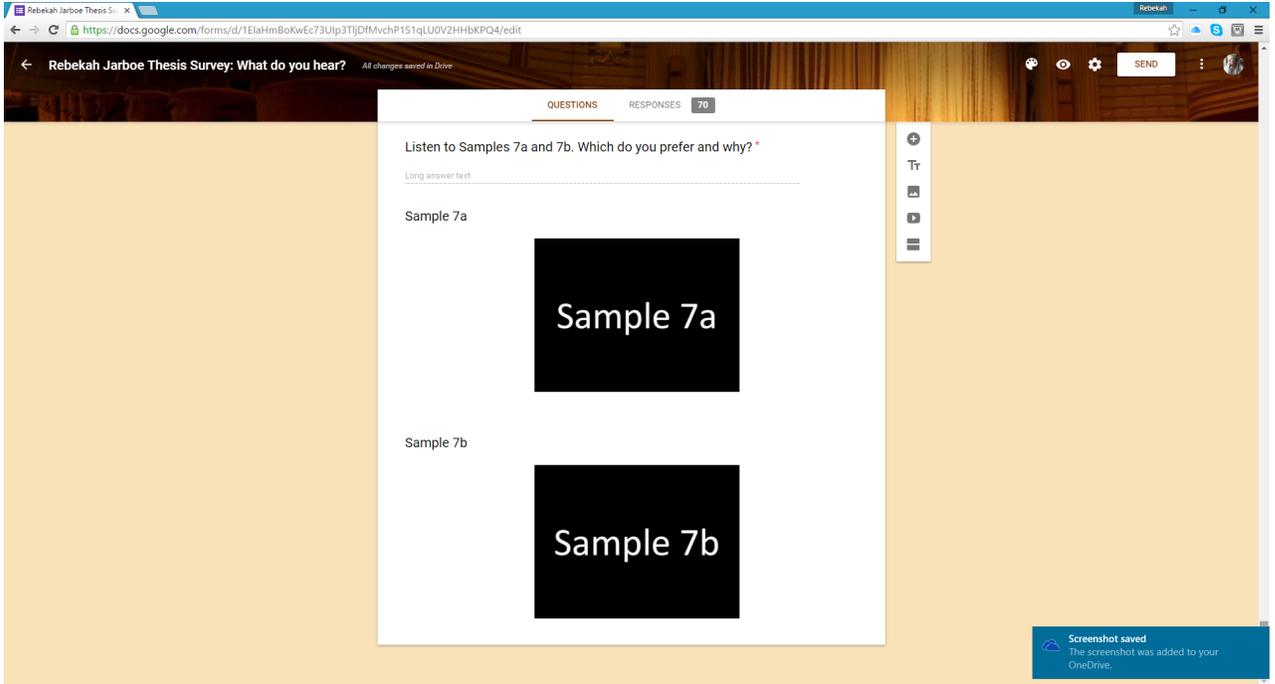
Sample 6a



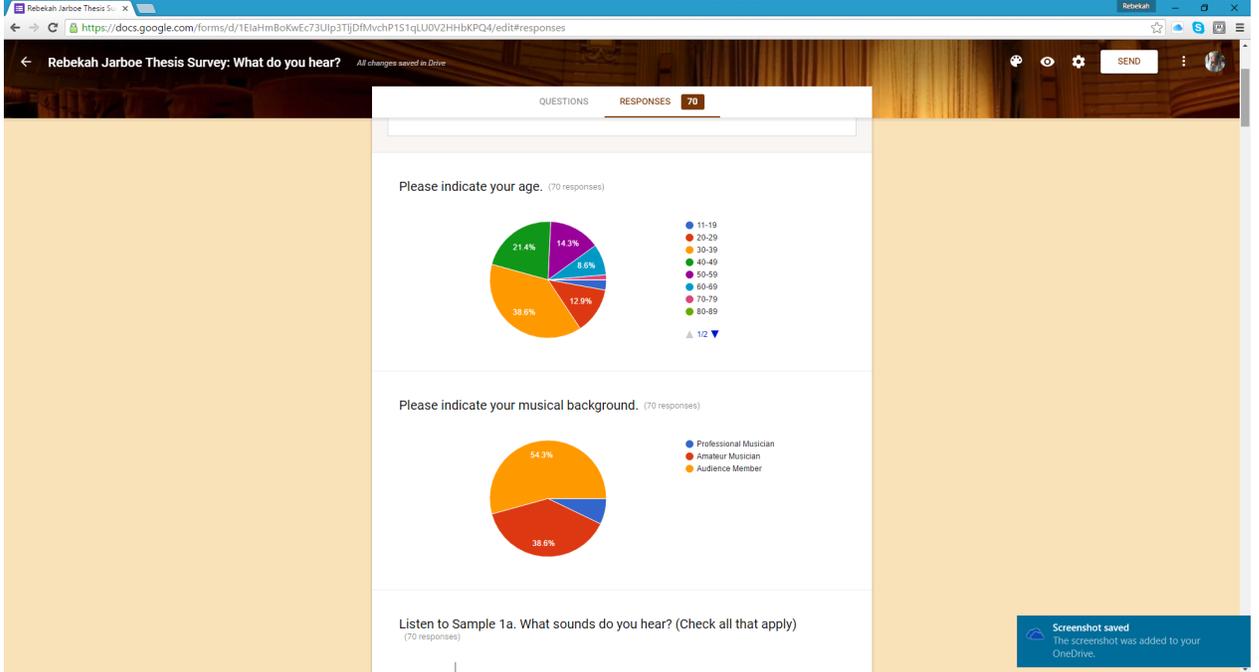
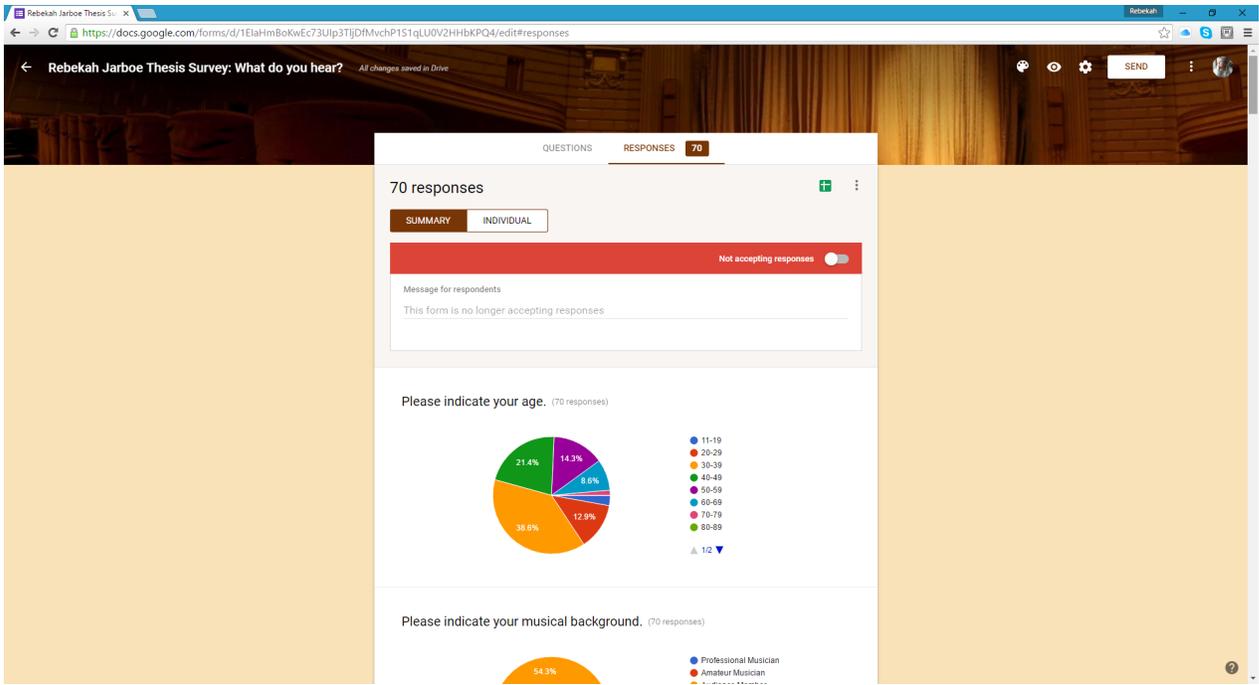
Sample 6b

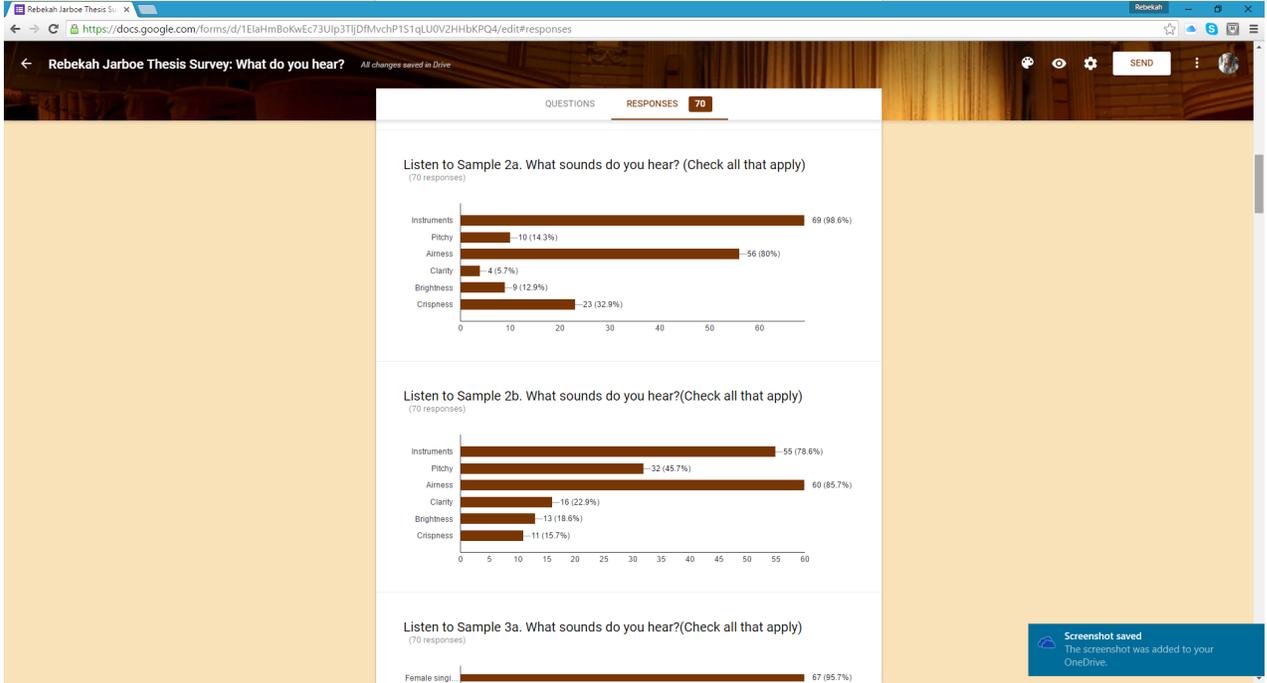
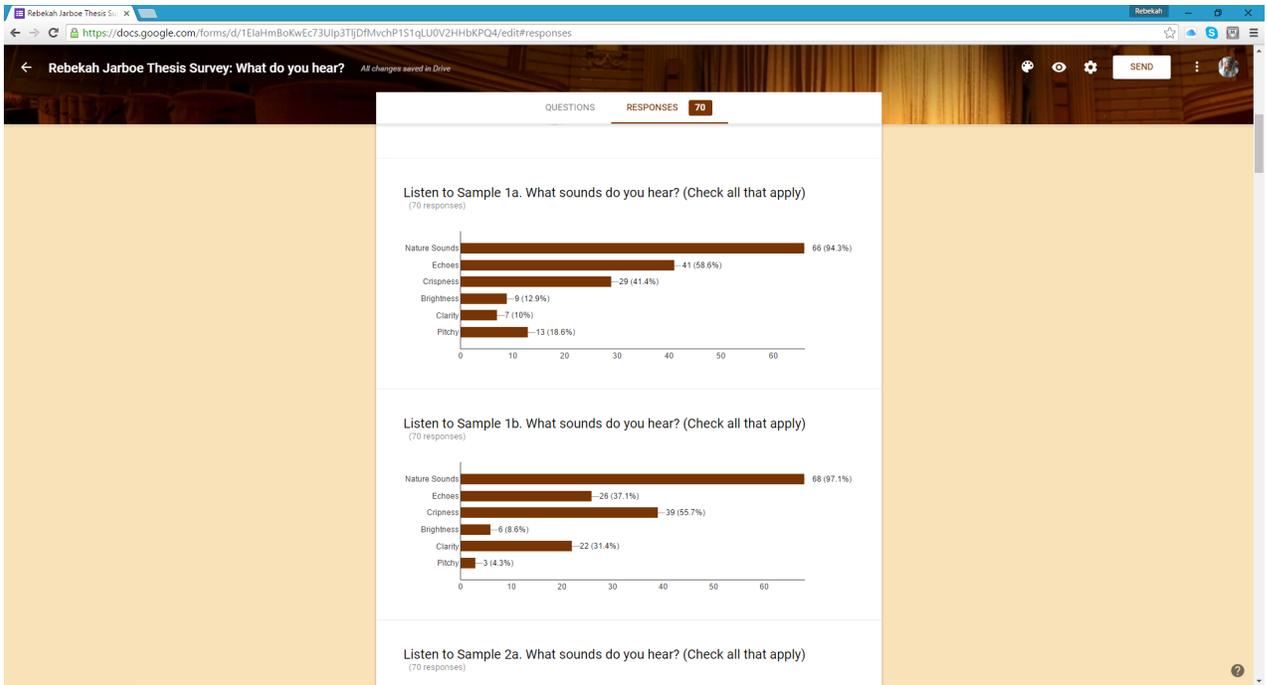


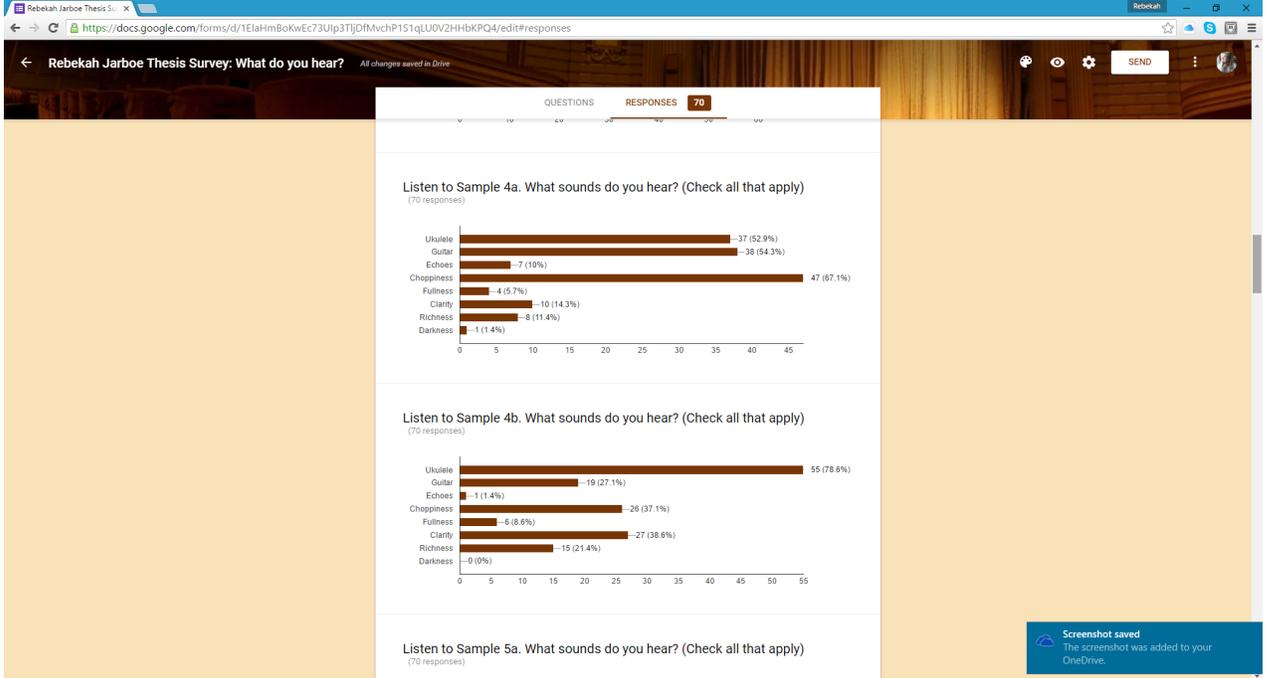
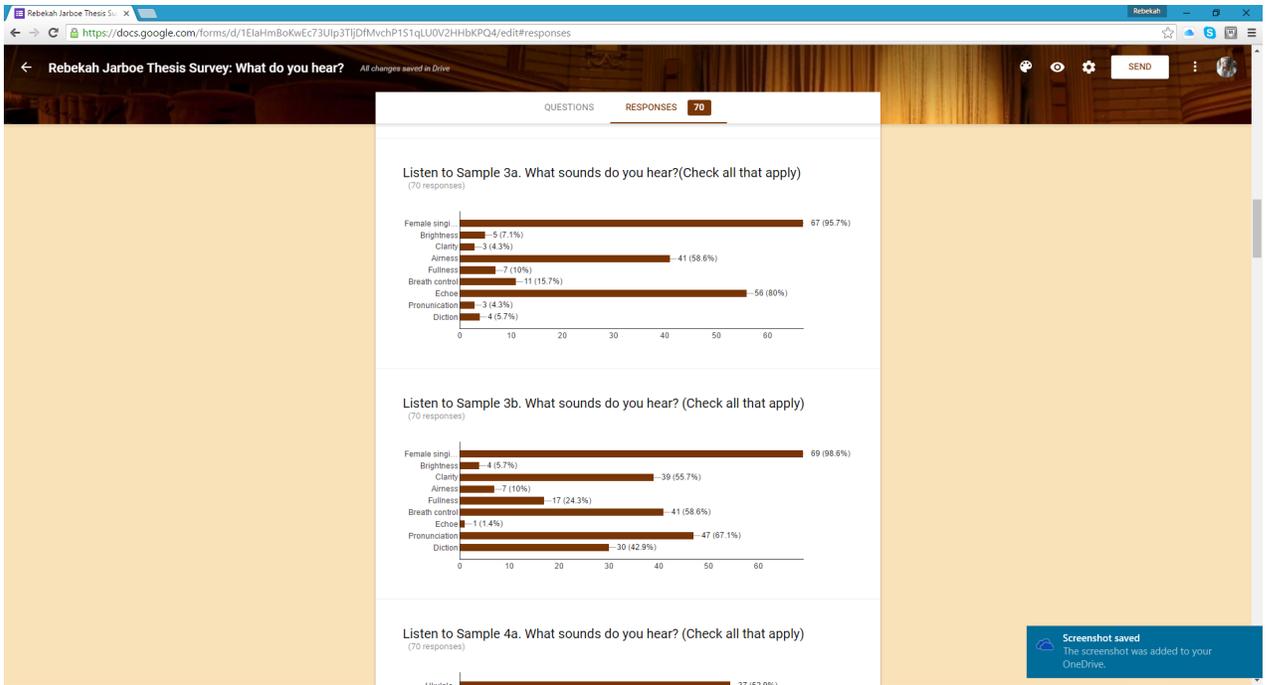
Listen to Samples 7a and 7b. Which do you prefer and why? \*

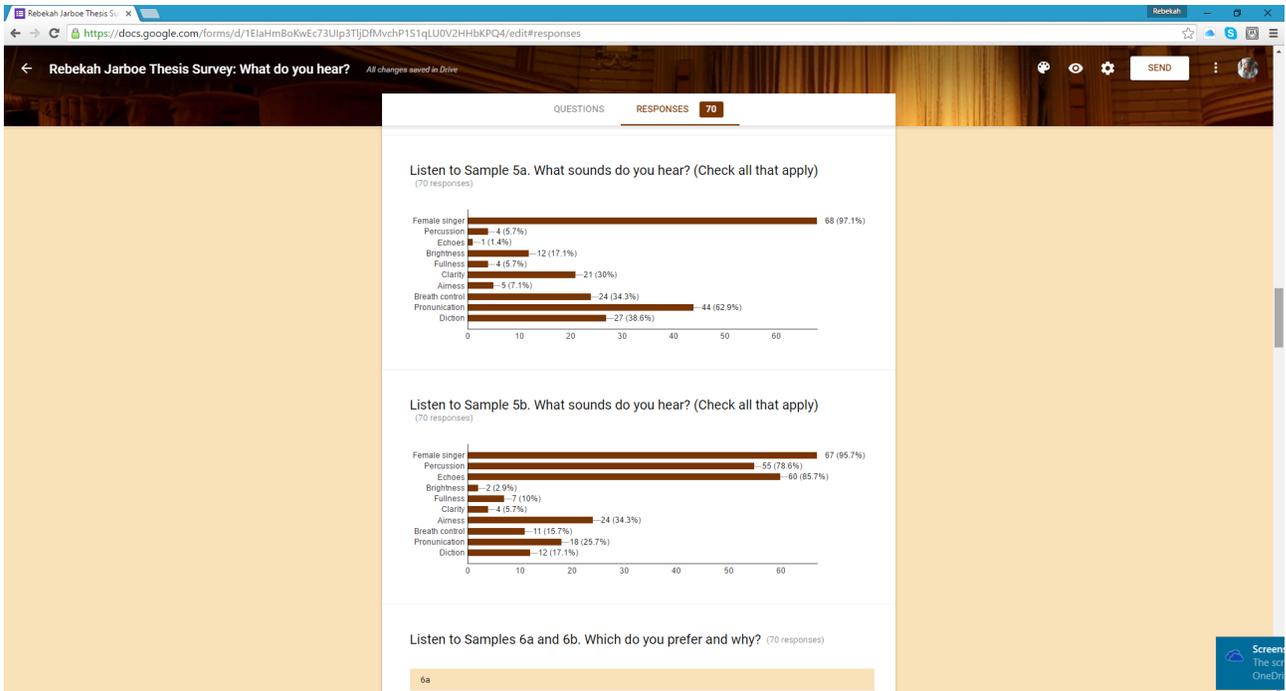


### Survey Results Form 1:









Rebekah Jarboe Thesis Survey: What do you hear? All changes saved in Drive

QUESTIONS RESPONSES 70

### Listen to Samples 6a and 6b. Which do you prefer and why?

(70 responses)

6a

6a

I prefer 6B because the musical notes and voice, although not natural, are more soothing to my ears and almost put me to sleep. 6A the notes, sounds, and singing are clearer, and easier to understand, but the musical notes are too sharp and hurt my ears.

I can't tell the difference! Or I don't have a preference.

6 B. Crackling fire and the sound of sheep.

I prefer sample 6a because the instrument was more pronounced. Sample 6b sounded creepy like music from an old abandoned amusement park. I'd be checking behind my back or nervously watching my surroundings waiting for something to jump out at me.

6a because the echo factor in 6b was very irritating.

6b...more soothing/muffled and calm

I prefer 6B. The instrument overpowered the nature sounds and was choppy in 6A. The instrument in 6B flowed with the sounds of nature. The voices in both were fine. The one in 6A was clearer but the one in 6B gave a haunting quality and enhanced the nature sounds.

6b because it seemed to be more logical and easier to listen to.

I like 6b better because the wind instrument isn't as prominent which gives it more of an eerie feeling.

6B1, clear and understandable

6b seems to flow better, less choppy and hesitant.

6b - the components of the different sounds seem to mesh together better with each other.

6B. Lighter, easier to relax to.

B it was more soothing and calming

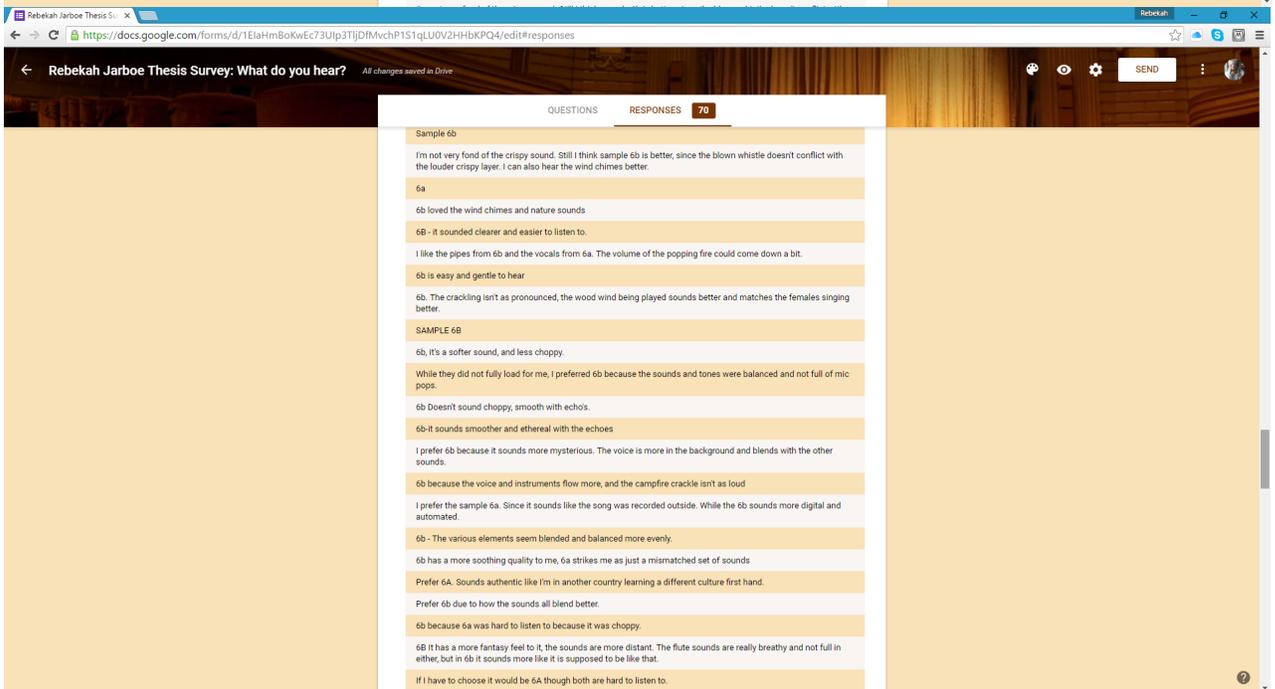
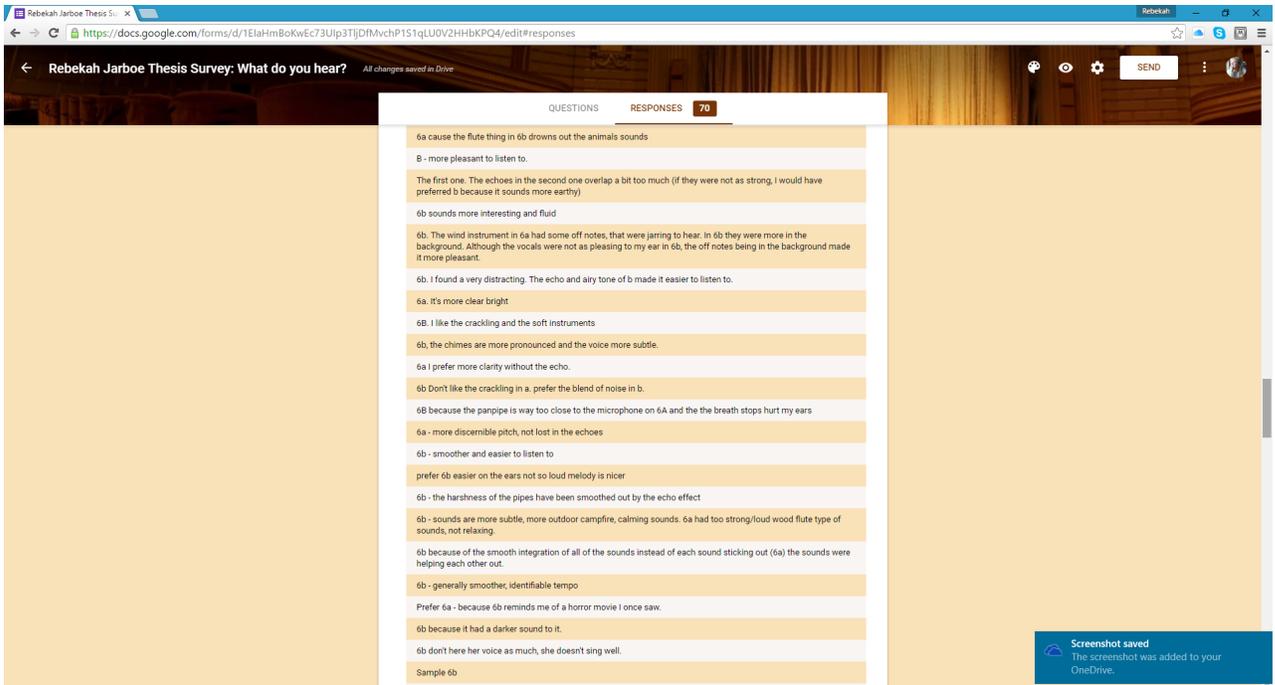
6A. You could understand the female singers words.

Neither one. They both moshed too many sounds together with a constant distracting scratching in the background - too loud to be a nice fire crackling outside while someone sang - into a microphone? Nothing made sense - just different sounds jumbled together - one with echoes and an attempt at a sparkling sound that seemed electronic and a fake overlay.

6a cause the flute thing in 6b drowns out the animals sounds

6b more pronounced than 6a

Screenshot saved  
The screenshot was added to your OneDrive.



Rebekah Jarboe Thesis Survey: What do you hear? *All changes saved in Drive*

QUESTIONS    RESPONSES **70**

6a clearer

I prefer 6b because it seemed to have more nature sounds and tones in it. It was more earthy.

6b...more relaxing

6b was slightly better because it wasn't as pitchy/screchy

6A1 It reminds me of being outside either in the woods or on the plains and to me that's the best way you can relax is camping in the wilderness

6b - it flows and is more pleasant to listen to

Prefer the first clip. The animal sounds were clear. The words were more understandable.

Listen to Samples 7a and 7b. Which do you prefer and why? (70 responses)

7b

7b

7b

I prefer 7b as the notes of the instrument and the singing are very clear, well pronounced, more natural, and accentuate the voice of the artist and the artists talent with the particular instrument.

7b because it's more clear.

7 A. Liked the percussion

I prefer 7b because it was less to pay attention too while trying to figure out the different sounds. Sample 7a had a lot of elements and I automatically was trying to figure out rhythm and pitch. None of it matched and it was very confusing because there were too many sounds to pay attention to.

7b because it had clarity.

7b better understanding

7B instruments should never overpower but accompany voice as it did in 7B. In 7A the instrument overpowered the voice.

7b because it was clearer and easier to listen to.

I like 7b better because the vocals are more in the forefront making it more like a song like and less like the sound

Rebekah Jarboe Thesis Survey: What do you hear? *All changes saved in Drive*

QUESTIONS    RESPONSES **70**

I like 7b better because the vocals are more in the forefront making it more like a song like and less like the sound is coming from a cave.

7A1, clear not overmodulated

7a because it sounds like there is more going on in the background.

7b - only a couple components that work well together, a beat and a voice.

7b. Clearer.

B you were able to better understand the song. In a the echoing made it distorted.

7b. Even though the female singer was a bit pitchy it was better. 7a was very confusing and dark to me.

7b was less horrible - out of tune, but at least the accompaniment approached going with the (off key) singing. 7A - the fake bongos and string instrument (sounded fake, too) seemed like the track was being played off kilter. Just a note on the previous surveys. I was confused because I thought pronunciation and diction are similar - don't know how you can not hear pronunciation and diction - anytime a word is said or sung, it is pronounced and has diction (clarity, tone, etc.).

7b is not overpowered by the instruments.

Neither - B if I have to pick. Easier to listen to.

B. A had a lot going on and was distracting. B was simpler.

7a

7b can understand better, it seems closer.

7b is more pleasing with the vocals carrying the melody in the foreground. The guitar and vocals not being in concert works better with the guitar being in the background

I preferred B. Although it seemed choppy, I could hear the singer clearly. A was hard to focus on because the melody was louder the the singer and I found myself struggling to hear the singer.

The echo

7B. I really do not like the echo effect. I dont know why, I just dont

7b - voice comes through more clearly.

7b Again I prefer no echo. Not a fan of either though. Seems flat to me.

7b. a is too chaotic

7b. Because it at least sounds like a real person, whereas 7A is so poorly mixed that every nuance is lost and all you can hear is the autopercussion

7b - simple melody, consistent timbre palette

Screenshot saved  
The screenshot was added to your OneDrive.

Rebekah Jarboe Thesis Survey: What do you hear? *All changes saved in Drive*

QUESTIONS    RESPONSES    70

7b - simple melody, consistent timbre palette

Neither

prefer 7a did not care for the womens voice too pitchy

7b - the clarity of the words makes the voice easier to listen to... also, the more acoustic sounding guitar compliments the voice better than in 7a.

7b because 7a had too many sounds happening at once that didn't seem connected, rhythms didn't seem to match up

7b was more on beat, instead of different beats playing at the same time that was scattered.

7b, more intelligible

Prefer 7b because I am not a fan of the echo and the instrumental is not as overpowering.

7a because the echo made her voice sound better where in 7b her voice is very whiny.

More sound, less fuzziness 7b

Sample 7b

Again, sample 7b is more balanced, since it was kept simple with only voice and ukulele. It's clearer and more pleasing to the ears.

7b ukulele and singing

7A - it sounded fuller and richer

7b

7b for me is more serene and easy to listen to.

7b. The singing doesn't have a distracting echo and the ukulele isn't louder than the singer.

SAMPLE 7B

7b, not as much going on in the back ground. Can hear more clearly.

Again these did not load fully. I listened to about the same amount for each one. I preferred sample 7b, again the balance between the vocals and the instrumentation was more to my liking.

7B 7A to much going on, to busy

7b-7a had too many sounds and no discernible rhythm. It sounded too disjointed.

I prefer 7a - again it sounds more eerie or mysterious due to the softer sound of the voice mixing it with the background sounds.

Rebekah Jarboe Thesis Survey: What do you hear? *All changes saved in Drive*

QUESTIONS    RESPONSES    70

7b - 7a to much going on, to busy

7b-7a had too many sounds and no discernible rhythm. It sounded too disjointed.

I prefer 7a - again it sounds more eerie or mysterious due to the softer sound of the voice mixing it with the background sounds.

7b because the voice is easy to hear. 7a is too echo-y and the voice doesn't seem to match the music's rhythm

I prefer sample 7b because it is more clear what the lyrics are. Even though I like the percussion that was in sample 7a.

7b - With so few layers to this composition, the reverb in 7a just made it too fuzzy and difficult to understand and listen to. 7b was more clear, and the sound of the two instruments were brought to the forefront.

7b is more appealing because it's louder, clearer, and organized

Prefer 7A. 7B sounds like a 1 man band in a bathroom recording with an iphone. 7A sounds more like an actual song.

Prefer 7b, the delivery seems more suited for the song. It needs to be clear

7b because I prefer hearing the vocals in the front rather than background.

7b because the guitar complements the voice. In the other one, the voice sounds like its in a different room, far from the guitar and its distracting and there is feedback from the mike on the voice.

7b. Clarity. Understanding of what I should be listening to/for.

I liked 7b, because it is easier to understand and the overall audio sample makes sense to me musically and literally.

7b...more clear

7b, because 7a had too much happening- too many elements

7B1 I don't know I just didn't listen all the way through 7A1

7b - you can hear your voice better, not drowned out by air sounds.

Prefer the second clip the voice and ukulele were clearer to understand.

Screenshot saved  
The screenshot was added to your OneDrive.

### Survey Results Form 2:

Timestamp Please indicate your age Please indicate your mu Listen to Sample 1a. Wh Listen to Sample 1b. Wh Listen to Sample 2a. Wh Listen to Sample 2b. Wh Listen to Sample 3a. Wh Listen to Sample 3b. Wh Listen to Sample 4a. Wh Listen to Sample 4b. Wh Listen to Sample 5a. Wh Listen to Sample 5b. Wh Listen to Samples 6a an

7/11/2016 20:30:06 20-29 Audience Member Nature Sounds, Pitchy Nature Sounds, Clarity Instruments, Pitchy, Airn Instruments, Pitchy, Clar Female singing, Fullnes Female singing, Clarity, Guitar, Fullness, Clarity, Ukulele, Choppiness, Cl Female singer, Fullness, Female singer, Percussi I prefer 6B because the

7/11/2016 20:48:37 20-29 Audience Member Nature Sounds, Echoes, Nature Sounds Instruments, Airness Instruments, Airness Female singing, Airness Female singing, Clarity,

Guitar, Choppiness, Clar Guitar, Clarity Female singer, Clarity, P Female singer, Percussi I can't tell the difference!

7/11/2016 20:58:03 40-49 Audience Member Nature Sounds, Crispne Nature Sounds, Echoes Instruments, Airness, Cri Instruments, Pitchy, Airn Female singing, Echoe Female singing Ukulele Ukulele Female singer Female singer, Percussi 6 B. Crackling fire and th

7/11/2016 20:58:57 30-39 Amateur Musician Nature Sounds, Crispne Clarity Instruments, Airness Instruments, Airness Female singing, Airness, Female singing, Clarity, Guitar Ukulele Female singer Female singer, Echoes, I prefer sample 6a beca

7/11/2016 21:04:22 40-49 Audience Member Nature Sounds, Echoes Nature Sounds, Echoes Instruments Instruments Female singing, Echoe Female singing, Clarity, Ukulele, Choppiness Ukulele, Clarity, Richnes Female singer, Clarity, P Female singer, Echoes 6a because the echo fac

7/11/2016 21:04:32 50-59 Audience Member Nature Sounds Nature Sounds, Cripnes Instruments, Airness Instruments, Airness Female singing, Airness, Female singing, Clarity, Ukulele, Guitar Ukulele Female singer, Airness, Female singer, Echoes, 6b...more soothing/muffl 7b better understanding

7/11/2016 21:11:08 60-69 Amateur Musician Nature Sounds, Echoes Nature Sounds, Echoes, Instruments, Airness Instruments, Pitchy, Airn Female singing, Airness, Female singing, Clarity, Guitar, Choppiness Ukulele, Clarity Female singer, Clarity, B Female singer, Percussi I prefer 6B. The instrum

7/11/2016 21:15:50 60-69 Audience Member Nature Sounds Nature Sounds, Cripnes Instruments, Airness Instruments, Pitchy, Airn Female singing, Echoe Female singing, Clarity, Guitar, Choppiness Ukulele, Choppiness Female singer, Brightne Female singer, Percussi 6b because it seemed to

7/11/2016 21:18:37 30-39 Amateur Musician Nature Sounds, Echoes, Nature Sounds, Echoes, Instruments, Airness, Bri Instruments, Pitchy, Airn Female singing, Brightn Female singing, Brightn Guitar, Choppiness Ukulele, Choppiness Female singer, Brightne Female singer, Percussi I like 6b better because t

7/11/2016 21:28:02 40-49 Amateur Musician Nature Sounds, Echoes, Nature Sounds, Cripnes Instruments, Airness Instruments, Pitchy, Airn Female singing, Airness, Female singing, Clarity, Ukulele, Choppiness Ukulele, Choppiness Female singer, Breath c Female singer, Percussi 6B1, clear and understa

7/11/2016 21:35:53 30-39 Audience Member Nature Sounds, Echoes, Nature Sounds, Cripnes Instruments, Airness Instruments, Airness Female singing, Airness, Female singing, Diction Ukulele, Choppiness Guitar, Choppiness Female singer Female singer, Percussi 6b seems to flow better,

7/11/2016 21:39:04 40-49 Audience Member Nature Sounds, Echoes, Nature Sounds, Clarity Instruments, Airness Instruments, Airness Female singing, Airness, Female singing, Airness, Ukulele, Choppiness, CI Ukulele, Fullness, Clarity Female singer, Breath c Female singer, Percussi 6b - the components of t

7/11/2016 21:40:17 40-49 Audience Member Nature Sounds, Crispne Nature Sounds, Cripnes Instruments, Airness Airness Female singing, Airness, Female singing Guitar, Choppiness, Ric Ukulele, Choppiness, CI Female singer, Pronunic Female singer, Percussi 6B. Lighter, easier to rel 7b. Clearer.

7/11/2016 21:40:56 30-39 Audience Member Nature Sounds Nature Sounds Instruments Airness  
Echoe Female singing Ukulele, Guitar, Echoes Ukulele Female singer, Pronunic Female singer,  
Percussi B it was more soothing a

7/11/2016 21:43:56 50-59 Amateur Musician Nature Sounds, Echoes, Nature Sounds, Echoes,  
Instruments, Airness Pitchy, Airness Female singing, Airness, Female singing, Clarity, Ukulele,  
Guitar, Choppin Guitar, Choppiness Female singer, Pronunic Female singer, Echoes 6A. You  
could understan

7/11/2016 21:45:24 50-59 Audience Member Nature Sounds, Echoes Nature Sounds  
Instruments, Airness Instruments, Airness Female singing, Airness, Female singing, Airness,  
Choppiness Ukulele, Choppiness Female singer, Airness Female singer, Percussi Neither one.  
They both

7/11/2016 21:47:22 40-49 Audience Member Nature Sounds Nature Sounds, Clarity Instruments,  
Airness Instruments, Pitchy Female singing Female singing, Clarity, Ukulele Guitar, Fullness,  
Clarity Female singer, Clarity, B Female singer, Percussi 6a cause the flute thing i

7/11/2016 21:50:59 70-79 Amateur Musician Nature Sounds Nature Sounds Instruments  
Instruments Female singing Female singing Choppiness Ukulele Female singer, Pronunic  
Female singer, Percussi B - more pleasant to list

7/11/2016 22:00:35 20-29 Amateur Musician Nature Sounds, Echoes, Nature Sounds, Echoes,  
Instruments, Pitchy, Airn Instruments, Pitchy, Airn Female singing, Brightn Female singing,  
Fullnes Guitar, Echoes, Choppin Ukulele, Echoes, Choppi Female singer, Fullness, Female  
singer, Percussi The first one. The echoe

7/11/2016 22:17:16 40-49 Audience Member Nature Sounds, Pitchy Nature Sounds Instruments,  
Airness, Cri Instruments, Airness Female singing, Echoe Female singing, Airness, Ukulele,  
Choppiness Guitar, Choppiness Female singer, Brightne Female singer, Percussi 6a 7a

7/11/2016 22:51:12 30-39 Audience Member Nature Sounds, Echoes Nature Sounds, Echoes,  
Instruments Airness Female singing, Echoe Female singing, Clarity, Ukulele, Echoes, Choppi  
Ukulele Female singer Female singer, Percussi 6b sounds more interesti

7/11/2016 23:00:02 40-49 Audience Member Nature Sounds, Echoes, Nature Sounds, Echoes  
Instruments, Airness Pitchy Female singing, Airness Female singing, Clarity, Guitar Ukulele  
Female singer Female singer, Percussi 6b. The wind instrument

7/11/2016 23:44:04 40-49 Audience Member Nature Sounds, Echoes, Nature Sounds, Echoes,  
Instruments, Airness, Cri Instruments, Airness Female singing, Echoe Female singing, Clarity,  
Guitar, Choppiness Ukulele, Clarity Female singer, Clarity Female singer, Echoes, 6b. I found a  
very distract

7/11/2016 23:56:23 50-59 Audience Member Nature Sounds, Echoes Nature Sounds, Cripnes  
Instruments, Pitchy Instruments, Brightness Female singing, Fullnes Female singing, Fullnes  
Ukulele, Echoes, Choppi Ukulele, Guitar, Clarity Female singer, Percussi Female singer,  
Percussi 6a. It's more clear bright The echo

7/12/2016 5:18:23 30-39 Audience Member Nature Sounds Nature Sounds, Cripnes Instruments,  
Airness, Cri Airness, Crispness Female singing, Airness Female singing, Breath Guitar,  
Choppiness Ukulele, Choppiness Female singer Female singer, Percussi 6B. I like the crackling a

7/12/2016 6:42:45 50-59 Audience Member Nature Sounds Nature Sounds Instruments, Airness  
Instruments, Airness Female singing, Echoe Female singing, Pronun Ukulele Ukulele Female  
singer Female singer, Percussi 6b, the chimes are more

7/12/2016 6:42:49 40-49 Amateur Musician Nature Sounds Nature Sounds Instruments Airness  
Female singing, Airness, Female singing, Clarity, Guitar, Choppiness Guitar Female singer  
Female singer, Percussi 6a I prefer more clarity w

7/12/2016 7:25:45 60-69 Amateur Musician Nature Sounds, Echoes, Nature Sounds, Cripnes  
Instruments, Airness, Bri Instruments, Pitchy, Airn Female singing, Brightn Female singing,  
Breath Guitar, Choppiness Ukulele Female singer, Pronunic Female singer, Percussi 6b Don't  
like the crackli 7b. a is too chaotic

7/12/2016 8:01:06 30-39 Audience Member Nature Sounds, Echoes, Nature Sounds, Echoes,  
Instruments, Airness Instruments, Pitchy, Airn Echoe Female singing, Brightn Choppiness  
Ukulele, Guitar, Fullness Female singer, Clarity, P Percussion, Echoes, Air 6B because the  
panpipe

7/12/2016 10:05:05 30-39 Professional Musician Nature Sounds, Echoes, Nature Sounds,  
Echoes, Instruments, Airness, Cri Instruments, Airness, Cl Female singing, Airness Female  
singing, Clarity, Ukulele, Clarity Ukulele, Clarity Female singer, Brightne Female singer, Percussi  
6a - more discernible pit

7/12/2016 10:20:43 20-29 Professional Musician Nature Sounds, Crispne Nature Sounds,  
Cripnes Instruments, Airness, Bri Instruments, Pitchy, Airn Female singing, Airness, Female  
singing, Breath Guitar Ukulele Female singer Female singer, Percussi 6b - smoother and easie  
Neither

7/12/2016 11:27:19 60-69 Amateur Musician Echoes, Pitchy Nature Sounds, Echoes,  
Instruments, Airness, Bri Instruments, Pitchy, Airn Female singing, Fullnes Female singing,  
Clarity, Ukulele, Choppiness, Ri Guitar, Fullness, Richne Female singer, Clarity, A Female singer,  
Percussi prefer 6b easier on the e

7/12/2016 13:11:35 40-49 Professional Musician Nature Sounds, Echoes, Nature Sounds,  
Echoes, Instruments, Pitchy, Airn Instruments, Pitchy, Airn Female singing, Airness, Female  
singing, Clarity, Guitar, Choppiness Ukulele, Choppiness Female singer, Brightne Female singer,  
Percussi 6b - the harshness of th

7/12/2016 13:17:18 50-59 Audience Member Nature Sounds, Crispne Nature Sounds, Cripnes  
Instruments, Airness, Cri Instruments, Airness Female singing, Airness, Female singing, Diction  
Ukulele Ukulele, Clarity Female singer Female singer, Percussi 6b - sounds are more su

7/12/2016 13:40:12 11-19 Amateur Musician Nature Sounds, Echoes, Nature Sounds, Cripnes  
Instruments, Airness, Cl Instruments, Pitchy, Airn Female singing, Brightn Female singing,  
Brightn Ukulele, Choppiness Ukulele, Guitar, Choppin Female singer, Percussi Female singer,  
Percussi 6b because of the smoot

7/12/2016 13:48:17 60-69 Amateur Musician Nature Sounds, Echoes, Nature Sounds, Echoes,  
Instruments, Airness Instruments, Airness Female singing, Pronuni Female singing, Breath  
Ukulele, Choppiness Ukulele Female singer, Breath c Female singer, Percussi 6b - generally  
smoother, 7b, more intelligible

7/12/2016 14:59:09 30-39 Audience Member Nature Sounds Nature Sounds, Cripnes  
Instruments, Airness Pitchy, Airness Female singing, Breath Female singing, Breath Guitar  
Ukulele, Choppiness Female singer, Percussi Percussion, Echoes Prefer 6a - because 6b r

7/12/2016 15:32:05 11-19 Amateur Musician Nature Sounds, Echoes, Nature Sounds, Brightne  
Instruments, Pitchy, Airn Instruments, Airness, Bri Female singing, Brightn Female singing,

Brightn Ukulele, Guitar, Choppin Ukulele, Fullness, Clarity Female singer, Brightne Female singer, Percussi 6b because it had a dark

7/12/2016 16:21:09 50-59 Audience Member Nature Sounds Nature Sounds, Echoes Instruments, Airness Instruments, Airness Female singing, Airness, Female singing, Clarity, Ukulele, Guitar Ukulele, Choppiness Female singer Female singer, Percussi 6b don't here her voice a

7/12/2016 16:35:07 30-39 Audience Member Nature Sounds, Crispne Nature Sounds, Cripnes Instruments, Airness, Bri Instruments, Airness, Cl Female singing, Airness, Female singing, Clarity, Guitar, Fullness, Richne Ukulele, Choppiness, Ri Female singer, Brightne Female singer, Percussi Sample 6b Sample 7b

7/12/2016 17:03:10 20-29 Amateur Musician Nature Sounds, Echoes, Nature Sounds, Cripnes Instruments, Airness, Cri Instruments, Pitchy, Airn Female singing, Echoe Female singing, Clarity, Guitar, Clarity, Darkness Ukulele, Clarity Female singer, Clarity, P Female singer, Percussi I'm not very fond of the c

7/12/2016 20:39:48 50-59 Amateur Musician Nature Sounds, Crispne Nature Sounds, Cripnes Instruments, Crispness Instruments Female singing, Echoe Female singing Ukulele Ukulele, Choppiness Female singer, Pronunic Female singer, Percussi 6a 7b

7/12/2016 21:03:47 30-39 Audience Member Crispness Nature Sounds, Cripnes Instruments, Crispness Instruments, Airness, Cri Breath control, Echoe Female singing, Breath Clarity, Richness Guitar Airness, Diction Female singer, Clarity, B 6b loved the wind chime 7b ukulele and singing

7/12/2016 21:40:46 40-49 Audience Member Nature Sounds, Clarity Nature Sounds, Cripnes Instruments, Airness Airness Female singing, Airness, Female singing, Pronun Guitar, Richness Ukulele Female singer, Pronunic Female singer, Percussi 6B - it sounded clearer a

7/12/2016 21:42:10 40-49 Amateur Musician Nature Sounds Nature Sounds Instruments Instruments, Airness Female singing, Airness, Female singing, Pronun Guitar, Choppiness Ukulele, Clarity Female singer, Clarity, D Female singer, Percussi I like the pipes from 6b a 7b

7/12/2016 22:04:38 40-49 Audience Member Nature Sounds, Echoes, Nature Sounds, Cripnes Instruments, Pitchy, Airn Instruments, Airness, Cri Female singing, Airness, Female singing, Clarity, Ukulele, Choppiness Guitar, Clarity, Richness Female singer, Clarity, P Female singer, Percussi 6b is easy and gentle to

7/12/2016 22:07:20 30-39 Amateur Musician Nature Sounds, Echoes, Nature Sounds, Cripnes Instruments, Airness, Cri Instruments, Pitchy, Airn Female singing, Echoe Female singing, Clarity, Ukulele, Choppiness Guitar, Clarity Female singer, Breath c Female singer, Percussi 6b. The crackling isn't as

7/12/2016 22:09:03 20-29 Amateur Musician Nature Sounds, Echoes, Nature Sounds, Echoes, Instruments, Pitchy, Clar Pitchy, Airness, Clarity, Female singing, Clarity, Female singing, Clarity, Ukulele, Choppiness Ukulele, Clarity Female singer, Clarity, B Female singer, Echoes SAMPLE 6B SAMPLE 7B

7/13/2016 0:05:26 30-39 Amateur Musician Nature Sounds, Echoes Nature Sounds, Echoes, Instruments, Airness, Cri Pitchy, Airness Female singing, Airness, Female singing, Clarity, Ukulele, Choppiness Ukulele, Clarity Female singer, Brightne Female singer, Percussi 6b, it's a softer sound, a

7/13/2016 1:49:52 30-39 Audience Member Nature Sounds, Echoes Nature Sounds Instruments, Airness Instruments, Airness Female singing, Airness, Female singing, Fullnes Ukulele, Echoes, Choppi Ukulele, Choppiness, CI Female singer, Brightne Female singer, Percussi While they did not fully I

7/13/2016 10:32:58 50-59 Audience Member Nature Sounds, Echoes, Nature Sounds, Echoes, Instruments, Airness, CI Instruments, Pitchy, Airn Female singing, Airness, Female singing, Airness, Ukulele, Choppiness Ukulele, Choppiness Female singer, Percussi Female singer, Echoes, 6b Doesn't sound chop

7/13/2016 18:17:17 60-69 Amateur Musician Nature Sounds, Echoes Nature Sounds, Clarity Instruments, Airiness Instruments, Pitchy, Airn Female singing, Airness, Female singing, Clarity, Guitar Ukulele Female singer, Pronunic Female singer, Percussi 6b-it sounds smoother a

7/13/2016 19:00:46 30-39 Audience Member Nature Sounds Clarity Instruments Clarity Female singing Pronunciation Guitar Richness Echoes Breath control 6a 7b

7/13/2016 19:42:26 50-59 Professional Musician Nature Sounds, Echoes, Nature Sounds, Echoes, Instruments, Airiness, Cri Instruments, Airness, Bri Female singing, Echoe Female singing, Clarity, Ukulele, Choppiness Ukulele, Choppiness Female singer, Clarity, D Female singer, Percussi I prefer 6b because it so

7/13/2016 19:50:05 30-39 Amateur Musician Nature Sounds, Echoes, Nature Sounds, Cripnes Instruments, Airiness, Crispness Female singing, Airness, Female singing, Clarity, Ukulele, Guitar, Choppin Ukulele, Guitar, Clarity Female singer, Pronunic Female singer, Echoes, 6b because the voice an

7/14/2016 10:21:03 30-39 Amateur Musician Nature Sounds, Crispne Nature Sounds, Echoes, Instruments, Pitchy, Airn Instruments, Pitchy, Airn Female singing, Airness, Female singing, Clarity, Ukulele, Guitar, Clarity Ukulele, Choppiness, CI Female singer, Clarity, B Female singer, Percussi I prefer the sample 6a.

7/18/2016 12:24:12 20-29 Amateur Musician Nature Sounds, Echoes, Nature Sounds, Cripnes Instruments, Airness Instruments, Airness, CI Female singing, Echoe Female singing, Diction Guitar, Choppiness Ukulele, Choppiness Female singer Female singer, Percussi 6b - The various elemen

7/18/2016 13:50:54 40-49 Audience Member Nature Sounds Nature Sounds, Cripnes Instruments, Airness Instruments, Airness Female singing, Airness, Female singing, Clarity, Guitar, Choppiness Guitar Female singer, Pronunic Female singer, Echoes, 6b has a more soothing

7/18/2016 14:09:52 30-39 Audience Member Echoes, Crispness Nature Sounds, Echoes, Instruments, Airiness, CI Instruments, Pitchy, Airn Female singing, Echoe Female singing, Clarity, Ukulele, Choppiness Ukulele, Choppiness Female singer Female singer, Echoes Prefer 6A. Sounds auth

7/18/2016 14:12:12 20-29 Audience Member Nature Sounds, Echoes, Nature Sounds, Echoes, Instruments Instruments, Pitchy, Clar Female singing, Clarity, Female singing, Clarity, Ukulele, Guitar, Choppin Ukulele, Guitar, Clarity, Female singer, Breath c Female singer, Percussi Prefer 6b due to how the

7/18/2016 15:12:22 30-39 Audience Member Nature Sounds, Echoes Nature Sounds, Echoes Instruments, Airness Instruments, Airness Female singing, Airness Female singing, Pronun Ukulele, Echoes, Choppi Ukulele, Richness Female singer, Pronunic Female singer, Percussi 6b because 6a was hard

7/18/2016 15:20:22 20-29 Amateur Musician Nature Sounds, Brightne Nature Sounds, Clarity Instruments, Airness Instruments, Pitchy, Airn Female singing, Airness, Female singing, Clarity, Guitar, Choppiness, Clar Guitar, Fullness, Clarity Female singer, Brightne Female singer, Percussi 6B It has a more fantasy

7/18/2016 15:55:47 30-39 Amateur Musician Nature Sounds, Echoes, Nature Sounds, Echoes, Instruments, Airness, Bri Instruments, Airness, Bri Female singing, Airness, Female singing, Clarity, Guitar, Echoes, Choppin Ukulele Female singer, Pronunic Female singer, Percussi If I have to choose it wo

7/18/2016 17:51:59 30-39 Audience Member Echoes, Pitchy Nature Sounds Instruments, Airness Instruments, Airness Female singing, Airness, Female singing, Clarity, Guitar, Fullness, Richne Guitar, Clarity, Richness Female singer, Clarity, B Female singer, Percussi 6a clearer 7b

7/18/2016 18:22:06 30-39 Amateur Musician Nature Sounds, Echoes Nature Sounds, Echoes Instruments, Pitchy, Airn Instruments, Pitchy, Airn Female singing, Echoe Female singing, Breath Ukulele, Choppiness Ukulele, Choppiness Female singer, Pronunic Female singer, Percussi I prefer 6b because it se

7/18/2016 18:41:19 30-39 Audience Member Nature Sounds Nature Sounds Instruments Airness Female singing Female singing Ukulele Ukulele Female singer Female singer 6b....more relaxing 7b...more clear

7/18/2016 21:54:25 30-39 Audience Member Nature Sounds, Echoes, Nature Sounds, Cripnes Instruments, Airness, Cri Instruments, Pitchy, Airn Female singing, Airness, Female singing, Clarity, Guitar, Choppiness, Clar Ukulele, Clarity, Richnes Female singer, Pronunic Female singer, Percussi 6b was slightly better be

7/19/2016 9:17:37 30-39 Audience Member Nature Sounds, Clarity Nature Sounds, Clarity Crispness Pitchy Female singing, Echoe Female singing, Breath Guitar, Choppiness Guitar Female singer, Brightne Female singer, Echoes, 6A1 it reminds me of bei

7/19/2016 22:26:00 30-39 Amateur Musician Nature Sounds, Echoes Nature Sounds, Pitchy Instruments, Airness Instruments, Pitchy, Airn Female singing, Airness, Female singing, Pronun Ukulele, Choppiness Ukulele, Choppiness Female singer, Diction Female singer, Echoes, 6b - it flows and is more

7/20/2016 8:44:16 30-39 Professional Musician Nature Sounds, Clarity, Nature Sounds, Echoes, Instruments, Pitchy, Airn Instruments, Pitchy, Airn Female singing, Airness, Female singing, Clarity, Ukulele, Guitar, Choppin Ukulele, Choppiness Female singer, Breath c Female singer, Percussi Prefer the first clip. The Listen to Samples 7a and 7b. Which do you prefer and why?

I prefer 7B as the notes of the instrument and the singing are very clear, well pronounced, more natural, and accentuate the voice of the artist and the artists talent with the particular instrument.

7b because it's more clear.

7 A. Liked the percussion

I prefer 7b because it was less to pay attention too while trying to figure out the different sounds.

Sample 7a had a lot of elements and I automatically was trying to figure out rhythm and pitch.

None of it matched a

7b because it had clarity.

7B Instruments should never overpower but accompany voice as it did in 7B. In 7A the instrument overpowered the voice.

7b because it was clearer and easier to listen to.

I like 7b better because the vocals are more in the forefront making it more like a song like and less like the sound is coming from a cave.

7A1, clear not overmodulated

7a because it sounds like there is more going on in the background.

7b - only a couple components that work well together; a beat and a voice.

B you were able to better understand the song. In a the echoing made it distorted.

7b. Even though the female singer was a bit pitchy it was better.,7a was very confusing and dark to me.

7b was less horrible -- out of tune, but at least the accompaniment approached going with the (off key) singing. 7A - the fake bongos and string instrument (sounded fake, too) seemed like the track was being playe

7b is not overpowered by the instruments.

Neither -- B if I have to pick. Easier to listen to.

B. A had a lot going on and was distracting. B was simpler.

7b can understand better, it seems closer.

7b is more pleasing with the vocals carrying the melody in the foreground. The guitar and vocals not being in concert works better with the guitar being in the background

I preferred B. Although it seemed choppy, I could hear the singer clearly. A was hard to focus on because the melody was louder the the singer and I found myself struggling to hear the singer.

7B. I really do not like the echo effect. I dont know why, I just dont

7b - voice comes through more clearly.

7b Again I prefer no echo. Not a fan of either though. Seems flat to me.

7B. Because it at least sounds like a real person, whereas 7A is so poorly mixed that every nuance is lost and all you can hear is the autopercussion

7b - simple melody, consistent timbre palette  
prefer 7a did not care for the womens voice too pitchy

7b - the clarity of the words makes the voice easier to listen to... also, the more acoustic sounding guitar compliments the voice better than in 7a.

7b because 7a had too many sounds happening at once that didn't seem connected, rhythms didn't seem to match up

7b was more on beat, instead of different beats playing at the same time that was scattered. Prefer 7b because I am not a fan of the echo and the instrumental is not as overpowering.

7a because the echo made her voice sound better where in 7b her voice is very whiny. More sound, less fuzziness 7b

Again, sample 7b is more balanced, since it was kept simple with only voice and Ukulele. It's clearer and more pleasing to the ears.

7A - it sounded fuller and richer

7b for me is more serene and easy to listen to.

7b. The singing doesn't have a distracting echo and the ukulele isn't louder than the singer.

7b, not as much going on in the back ground. Can hear more clearly.

Again these did not load fully. I listened to about the same amount for each one. I preferred sample 7b, again the balance between the vocals and the instrumentation was more to my liking.

7B 7A too much going on, too busy

7b-7a had too many sounds and no discernible rhythm. It sounded too disjointed.

I prefer 7a - again it sounds more eerie or mysterious due to the softer sound of the voice mixing it with the background sounds.

7b because the voice is easy to hear. 7a is too echo-y and the voice doesn't seem to match the music's rhythm

I prefer sample 7b because it is more clear what the lyrics are. Even though I like the percussion that was in sample 7a.

7b - With so few layers to this composition, the reverb in 7a just made it too fuzzy and difficult to understand and listen to. 7b was more clear, and the sound of the two instruments were brought to the forefront.

7b is more appealing because it's louder, clearer, and organized  
Prefer 7A. 7B sounds like a 1 man band in a bathroom recording with an iphone. 7A sounds more like an actual song.

Prefer 7b, the delivery seems more suited for the song. It needs to be clear

7b because I prefer hearing the vocals in the front rather than background.

7b because the guitar complements the voice. In the other one, the voice sounds like it's in a different room, far from the guitar and it's distracting and there is feedback from the mike on the voice.

7b. Clarity. Understanding of what I should be listening to/for.  
I liked 7b, because it is easier to understand and the overall audio sample makes sense to me musically and literally.

7b, because 7a had too much happening- too many elements

7B1 I don't know I just didn't listen all The way through 7A1

7b - you can hear your voice better, not drowned out by air sounds.

Prefer the second clip the voice and ukulele were clearer to understand.

**Appendix C:  
Official Permission Letters Requests**

Mr. Brian Wallace,  
Author of The Pouches of Salem and The Fouling of Salem  
07/30/2015 and 07/08/2016

Brian, I am writing to you to get official written permission to use your lyrics from your book The Pouches of Salem for my original song compositions and recording process. I know we spoke in person and over Facebook Messenger for permission in the past. I just want to request again in written permission to include this song's notation and recording in my thesis project and possible a future recording album for destitution. Since you hold the copyright of your words and lyrical idea, I will be sending you a copy of my notation of the song I completed in my Advance Notation Course this summer. I know I have already sent you a very rough raw sample of the idea of my recording of the song. I will be sending a copy of all the different samples I will be making to include in my thesis project. I then will inform you which one will be used in the potential single album.

Sincerely, your friend,  
Rebekah Jarboe

Music Teacher at: Hollywood Elementary School,  
Dynard Elementary School,  
and Piney Point Elementary School  
St. Mary's County Public School System  
Maryland  
Masters in Music Technology Student at the University of Valley Forge

Mr. Matthew McGowan,  
Author of "Auto-Tune's Effect on Musicians, Genres, and Culture."  
Ottawa, Ontario, Canada  
07/30/2015 and 07/08/2016

Matthew, I am writing to get official written permission to use your thesis as a cited resource for my thesis paper and for quoting purposes in my paper. I know we have communicated by Twitter but I wanted to write a more official request to you for permission.

McGowan, Matthew. "Auto-Tune's Effect on Musicians, Genres, and Culture."  
Carleton University. Ottawa, Ontario. May 14, 2012. Copyright Matthew McGowan 2012.

Sincerely a fellow music colleague and music student,  
Rebekah Jarboe  
Music Teacher at: Hollywood Elementary School,  
Dynard Elementary School,  
and Piney Point Elementary School  
St. Mary's County Public School System  
Leonardtown, Maryland, United States of America  
Masters in Music Technology Student at the University of Valley Forge

Mr. Steve Errede

Author of "Electric vs. Acoustic: Understanding the Qualitative Differences In Sound between Pianos and Digital Emulators."

University of Illinois Urbana-Champaign,  
Illinois

07/08/2016

Steve, I am writing to get official written permission to use your thesis as a cited resource for my thesis paper and for quoting purposes in my paper. I found your paper on Google Scholar web source. I would like to use your paper as a resource for my thesis paper and project on Authentic vs Process Sound Perceptions. My project will be including a recording project of samples for a survey of professional musicians and the general public to see what they hear and prefer.

Errede, Steve. "Electric vs. Acoustic: Understanding the Qualitative Differences In Sound between Pianos and Digital Emulators." UIUC Physics 193: Physics of Music. University of Illinois Urbana-Champaign. Copyright Fall 2011

Sincerely a fellow music colleague and music student,  
Rebekah Jarboe

Music Teacher at: Hollywood Elementary School,  
Dynard Elementary School,  
and Piney Point Elementary School

St. Mary's County Public School System

Leonardtown, Maryland, United States of America

Masters in Music Technology Student at the University of Valley Forge

Ms. Laurel Dietz

St. Mary's County Public School System's Fine Arts Supervisor

Leonardtown, Maryland

07/08/2016

Laurel, I am writing to you to ask for permission to distribute a survey to the music teachers of St. Mary's County Public Schools for my thesis project in the summer of 2015-2016 school year.

I am in the process of earning a degree in Music Technology from the University of Valley Forge, PA. This year and next summer I will be working on my Production Thesis Project. My thesis is on Authentic vs Process Sound

Perceptions. My project will be including a recording project of samples for a survey of professional musicians and the general public to see what they hear and prefer. I will be using Survey Monkey and Google Survey for distribution of the survey and data collection.

Sincerely, one of your music employees and music student,  
Rebekah Jarboe

Music Teacher at: Hollywood Elementary School,  
Dynard Elementary School,  
and Piney Point Elementary School

St. Mary's County Public School System

Leonardtown, Maryland, United States of America

Masters in Music Technology Student at the University of Valley Forge

1401 Charlestown Road, Phoenixville, PA 19460

07/08/2016

To the public,

Facebook, Twitter, Webpage, and open forums,

Friends, Family, and others,

I am in the process of earning a degree in Music Technology from the University of Valley Forge, PA. This year and next summer I will be working on my Production Thesis Project. My thesis is on Authentic vs Process Sound Perceptions. My project will be including a recording project of samples for a survey for professional musicians and the general public to see what they hear and prefer. I will be using Survey Monkey and Google Survey for distribution of the survey and data collection.

I am seeking your help with my thesis project. I need you to listen to some of samples and answer a survey on them. Please take this survey to help me collect data from the general population and please pass my survey on to your friends and family to help me with this project.

Thank you, a very grateful music student,

Rebekah Jarboe

Leonardtown, Maryland, United States of America

Masters in Music Technology Student as the University of Valley Forge

1401 Charlestown Road, Phoenixville, PA 19460

**Official Permission Letters**

**Matthew McGowan**

47 Westwood Drive, Ottawa, Ontario, Canada, K2G 2W9

613-986-6801

[matthew@McGowan.M](mailto:matthew@McGowan.Media)

[edia](#)

<https://McGowan.Me>

[dia](#)

July 16, 2016

Rebekah Jarboe

M.A. candidate in Music Technology, University of Valley Forge Leonardtown,

Maryland

USA

Dear Ms. Jarboe,

Thank you kindly for your letter requesting permission to cite my Masters of Arts graduate thesis, "Auto-Tune's Effect on Musicians, Genres, and Culture,"<sup>1</sup> as a part of your own graduate work in music and technology. I am delighted that you have taken not only an interest in my graduate work, but also would like to incorporate it into your own work.

Please feel free to reference, quote, and/or expand upon my thesis in your own work, so long as appropriate reference and/or citation is given in the bibliography (or in accordance with your academic institution's style guide).

I hope my thesis can be of assistance to you, and I would enjoy the opportunity to read your finished thesis. Let's keep in touch, and let me know if you require any further assistance, or have any further questions, comments, or concerns.

Sincerely yours,

Matthew McGowan

---

<sup>1</sup>McGowan, Matthew. "Auto-Tune's Effect on Musicians, Genres, and Culture." Carleton University. Ottawa, Ontario. May 14, 2012. Copyright Matthew McGowan 2012.

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• July 12



7/12, 9:09pm

**Brian Wallace**

I, Brian Wallace, hereby grant non-exclusive license for Rebekah Jarboe to use my lyrics from The Pouches of Salem in her thesis project. License regarding a future album will need to be negotiated in greater detail if that album is going to be produced for sale / distribution. - Brian Wallace

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